

Old Myers Solar

Full Environmental Assessment Form Part 1 Addendum

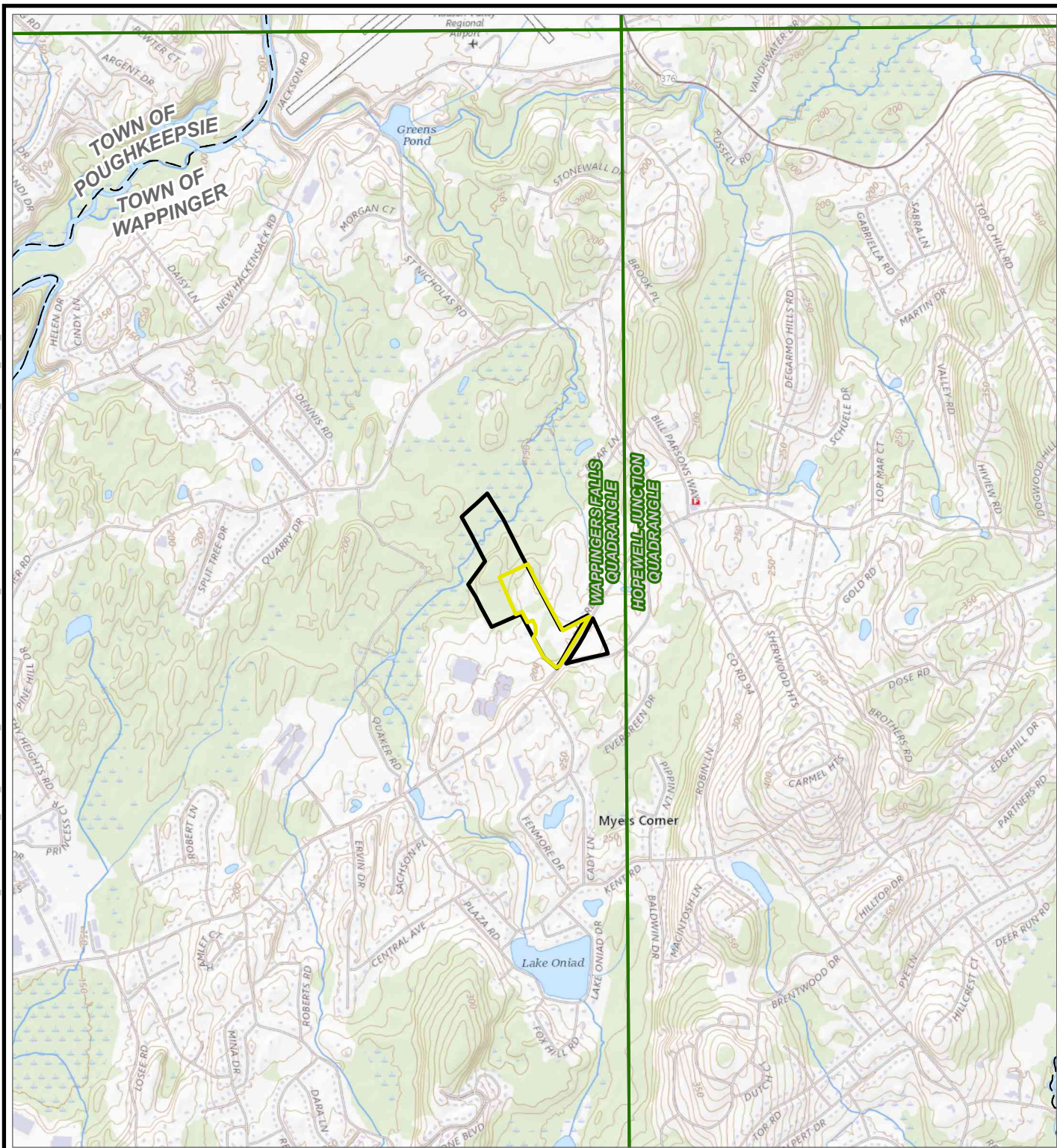
The following information has been provided to supplement responses on the Full EAF, as needed.

Attachments:

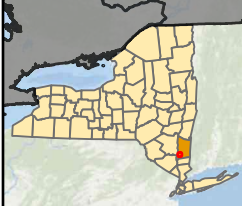
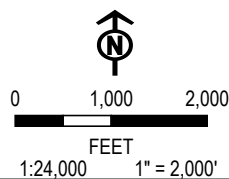
- A. Site Location Map
- B. NYSDEC Environmental Resource Mapper Review
- C. USFWS IPaC Official Species List
- D. SHPO Consultation Engagement
- E. NYSDEC Project Consultation
- F. Wetland/Waterbody Delineation Report

Attachment A
Site Location Map

COORDINATE SYSTEM: NAD 1983 STATEPLANE NEW YORK EAST FIPS 3101 FEET, MAP ROTATION: 0
- SAVED BY: AKAILAS ON 11/29/2022, 10:19:01 AM, FILE PATH: \\EMPLOYEE\GIS\ARC\GISPROJ-PROJECTS\LIGHTSTAR SOLAR\488729_1753_OLDMEYER SOLAR\2-APRXLIGHTSTAR MEYER APPX. LAYOUT NAME: FIG1 MEYER SITE LOCATION



- PROJECT LEASE AREA
- PROJECT PARCEL
- MUNICIPAL BOUNDARY
- USGS 24K QUADRANGLE BOUNDARY



BASE MAP: USGS 24K TOPOGRAPHIC MAP SERVICE (THE NATIONAL MAP)
DATA SOURCES: USGS, ESRI, TRC, LSR

PROJECT: **LIGHTSTAR RENEWABLES, LLC**
PHASE I ENVIRONMENTAL SITE ASSESSMENT
OLD MEYER SOLAR
TOWN OF WAPPINGER, DUTCHESS COUNTY, NEW YORK

TITLE: **SITE LOCATION MAP**

DRAWN BY: A. KAILAS	PROJ. NO.: 488729.1794
CHECKED BY: M. MUSARRA	FIGURE 1
APPROVED BY: J. LAZARUS	
DATE: NOVEMBER 2022	



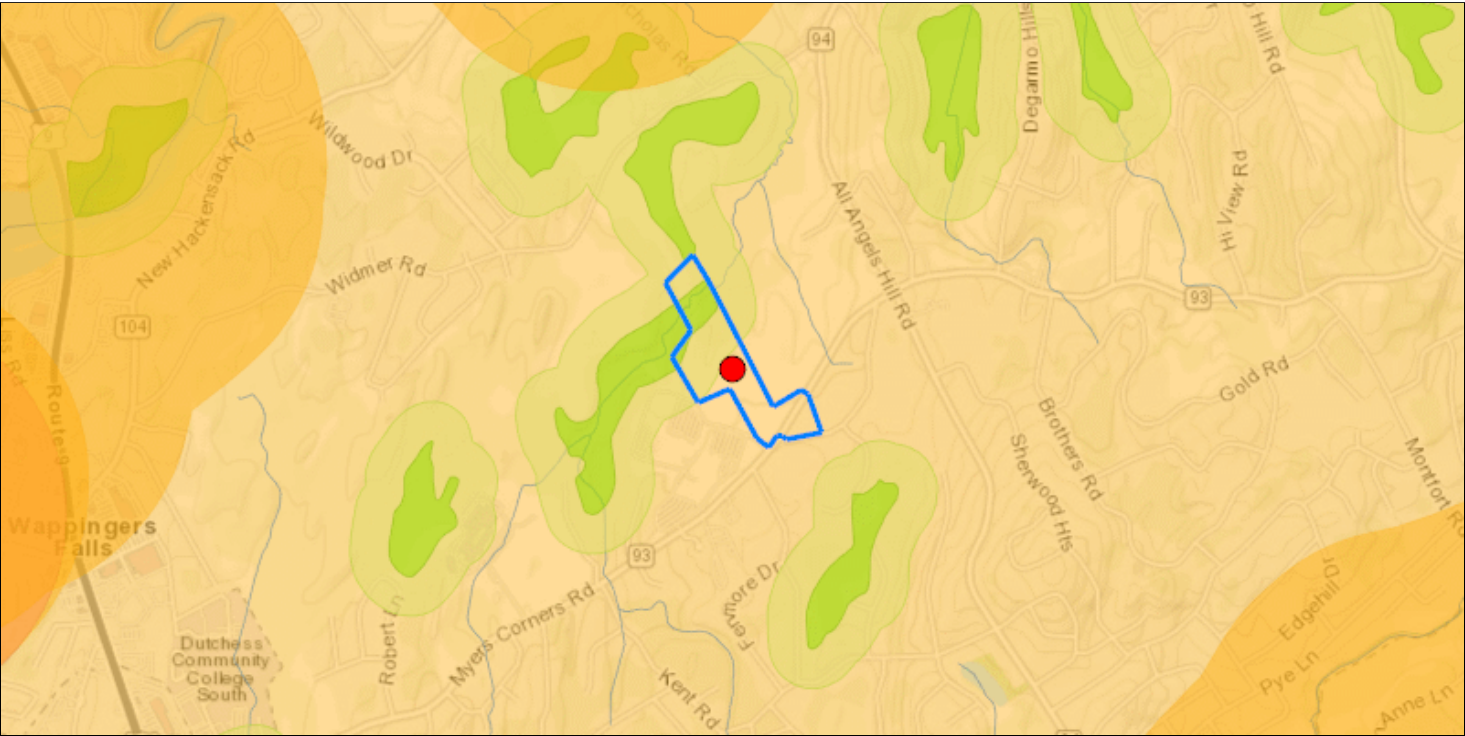
10 MAXWELL DRIVE
CLIFTON PARK, NY 12065
PHONE: 518-348-1190

FILE: LIGHTSTAR_MEYER

Attachment B

NYSDEC Environmental Resource Mapper Review

Environmental Resource Mapper



The coordinates of the point you clicked on are:

UTM 18	Easting:	593314.8014455633	Northing:	4606341.280298335
Longitude/Latitude	Longitude:	-73.88018719898572	Latitude:	41.603336943121505

The approximate address of the point you clicked on is:
Town of Wappinger, New York

County: Dutchess
Town: Wappinger
USGS Quad: WAPPINGERS FALLS

Freshwater Wetlands Checkzone

This location is in the vicinity of one or more Regulated Freshwater Wetlands.

Rare Plants and Rare Animals

This location is in the vicinity of Bats Listed as Endangered or Threatened -- Contact NYSDEC Regional Office

If your project or action is within or near an area with a rare animal, a permit may be required if the species is listed as endangered or threatened and the department determines the action may be harmful to the species or its habitat.

If your project or action is within or near an area with rare plants and/or significant natural communities, the environmental impacts may need to be addressed.

The presence of a unique geological feature or landform near a project, unto itself, does not trigger a requirement for a NYS DEC permit. Readers are advised, however, that there is the chance that a unique feature may also show in another data layer (ie. a wetland) and thus be subject to permit jurisdiction.

Please refer to the "Need a Permit?" tab for permit information or other authorizations regarding these natural resources.

Disclaimer: If you are considering a project or action in, or near, a wetland or a stream, a NYS DEC permit may be required. The Environmental Resources Mapper does not show all natural resources which are regulated by NYS DEC, and for which permits from NYS DEC are required. For example, Regulated Tidal Wetlands, and Wild, Scenic, and Recreational Rivers, are currently not included on the maps.



Environmental Resource Mapper

Base Map: Topographical Using this map

Search

Tools

Layers and Legend

☒ Waterbody Classifications for Lakes☒ State Regulated Freshwater Wetlands
(Outside of the Adirondack Park)☐ State Regulated Wetland Checkzone ☒ Imperiled Mussels☐ Mussel Screening Ponded Waters

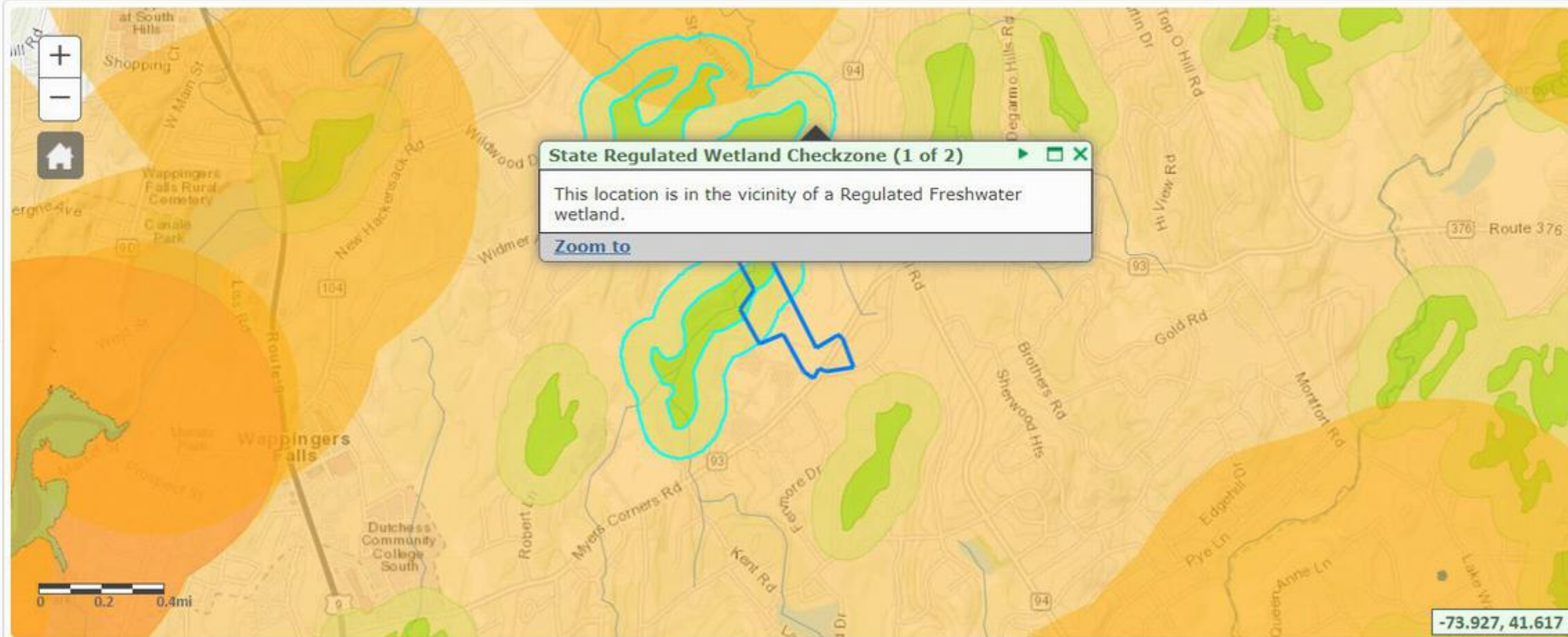
Other Wetland Layers

Reference Layers

Tell Me More...

Need A Permit?

Contacts





Environmental Resource Mapper

Base Map: Topographical [Using this map](#)

Search

Tools

Layers and Legend

☒ Significant Natural Communities

Natural Communities Near This Location

☒ Rare Plants or Animals☒ Base Flood Elevation Plus 72/75 Inches Sea-level Rise☒ Limit to Moderate Wave Action

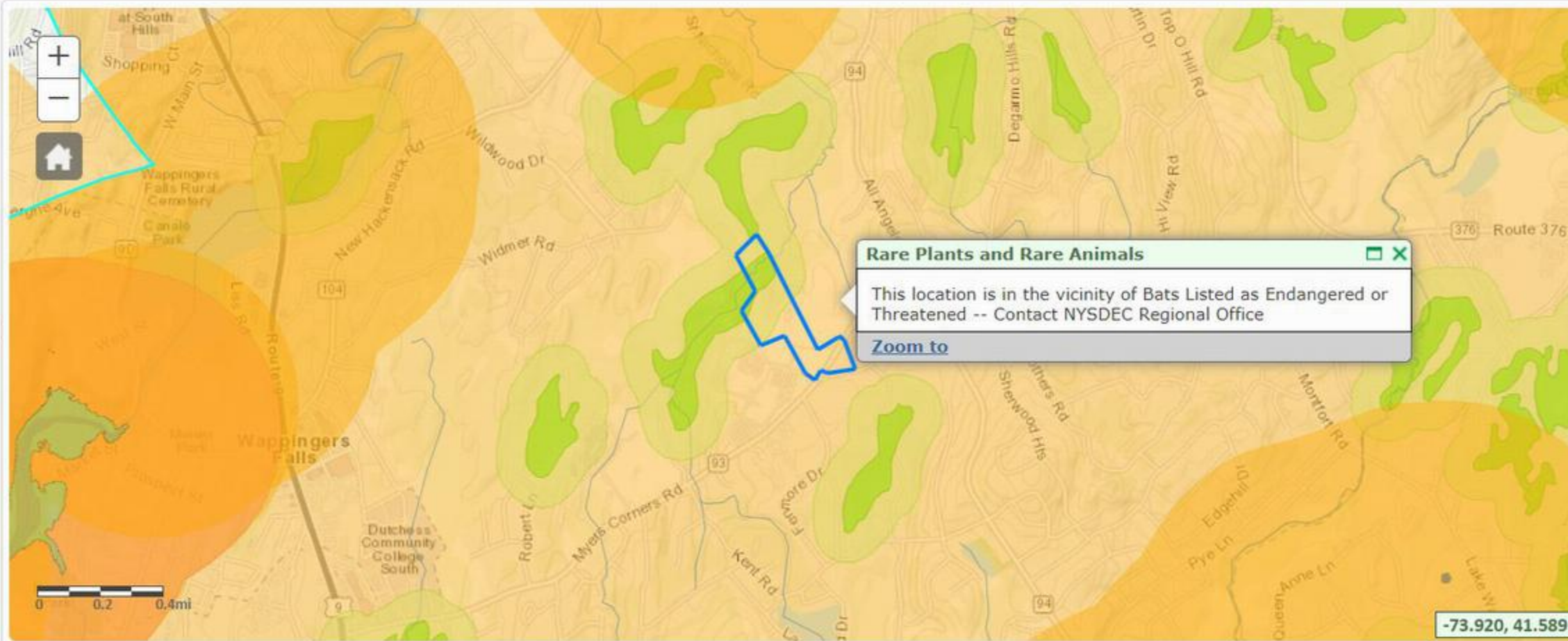
Other Wetland Layers

Reference Layers

Tell Me More...

Need A Permit?

Contacts



Attachment C

USFWS IPaC Official Species List



United States Department of the Interior



FISH AND WILDLIFE SERVICE
New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
Phone: (607) 753-9334 Fax: (607) 753-9699
Email Address: fw5es_nyfo@fws.gov

In Reply Refer To:
Project Code: 2022-0082209
Project Name: Old Meyer Solar Project

September 06, 2022

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2))

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see <https://www.fws.gov/birds/policies-and-regulations.php>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see <https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. **Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.**

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New York Ecological Services Field Office

3817 Luker Road

Cortland, NY 13045-9385

(607) 753-9334

Project Summary

Project Code: 2022-0082209

Project Name: Old Meyer Solar Project

Project Type: Power Gen - Solar

Project Description: Lightstar Renewables (Lightstar) is proposing a 2 MW ac community solar project located in the Town of Wappinger, Dutchess County, New York. The Project is sited on a 10.4-acre leased portion of a 38-acre parcel (Project Site). The construction of the Project will include an access road, solar panel installation, and perimeter fencing.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@41.601867,-73.87880304745292,14z>



Counties: Dutchess County, New York

Endangered Species Act Species

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Indiana Bat <i>Myotis sodalis</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

IPaC User Contact Information

Agency: TRC

Name: Lisa Downing-Schmidt

Address: 215 Greenfield Parkway Suite 102

City: Liverpool, NY 13088

State: NY

Zip: 13088

Email: ldowningschmidt@trccompanies.com

Phone: 3154309190

Attachment D

SHPO Consultation Engagement



1356 Washington St, Suite A
Bath, ME 04530

T. 207-215-2872

July 6, 2022

Daniel Mackay, Deputy Commissioner/Deputy SHPO
New York State Office of Parks, Recreation and Historic Preservation
Historic Preservation Field Services Bureau
Peebles Island Resource Center, PO Box 189
Waterford, NY 12188-0189

RE: Request for Consultation: Old Meyer Solar Project in the Town of Wappinger, Dutchess County, New York

Dear Mr. Mackay:

Lightstar Renewables (Lightstar) is proposing to construct a new, 2 MW ac ground-mounted solar project on a portion of the 38-acre parcel (the Project Parcel) located next to an existing substation near the intersection of Myers Corners Road and Old Myers Corner Road in the Town of Wappinger, Dutchess County, New York (Figure 1). The Old Meyer Solar Project Site will cover approximately 10.2 acres within the 38-acre parcel (Figure 1).

TRC has been retained by CCR to provide environmental review and licensing services in support of the Project. The purpose of this letter is to initiate formal consultation with your agency to determine whether there are any potential impacts to cultural resources that could result from the Project Site. TRC completed preliminary background research of the Project Site and vicinity using the National Park Service (NPS), National Register of Historic Places (NRHP), and the OPRHP Cultural Resource Information System (CRIS) websites.

The Project Site is located on the north side of Myers Corners Road at its intersection with Old Myers Corner Road. The Project Site is composed of both agricultural fields and forested areas (Figure 2).

Natural Resource Conservation Service (NRCS) has identified a single soil unit within the Project Site. Dutchess-Cardigan complex, undulating, rocky, 1-6% slopes (DwB). This soil unit is derived from loamy glacial till and is well drained.

Based on a review of Cultural Resource Information System (CRIS), there are three OPRHP archaeological sites and no New York State Museum sites or area located within a one-mile radius of the Project Site (**Table 1**). Two of the archaeological sites date to the Historic period and one is associated with the general Precontact period. The National NRHP eligibility of the Precontact period site has not been determined. Similarly, the NRHP eligibility of the Historic site, Test 15 Site (02719.000025), remains undetermined. The Riccobono Historic Site (02719.000125) is not eligible for listing on the NRHP.

Seven previous archaeological surveys have been conducted within one mile of the Project Site. These studies and their distance from the Project Site are summarized in **Table 2**. Additionally, seven closed projects are shown in CRIS within one mile of the Project Site (**Table 3**). Two of these projects are located adjacent to the west side of the Project Site and are associated with the transmission line corridor: TV Transmission Line Rebuild Project (17PR07941) and KM Transmission Line Rebuild Project (17PR07942).

Table 1: Previously Identified Archaeological Resources within One Mile

USN	Name	Time Period	Status	Distance to Project
02719.000025	Test 15 Site	Historic	Undetermined	0.13 miles west
02719.000124	Cranberry Hills Prehistoric Site	Precontact	Undetermined	0.28 miles north
02719.000125	Riccobono Historic Site	Historic – 20 th century	Not Eligible	0.83 miles northwest

Table 2: Previously Conducted Archaeology Surveys completed within One mile of the Project Site

Survey Number	Report Title	Year-Author	Distance to Project
00SR50877	Phase IA Report for Archeological Potential Sensitivity Assessment and Phase IB Archeology Field Investigation, Proposed Water Improvements, Town of Wappinger, Dutchess County, New York	2000 – Hartgen Archeological Assoc. Inc.	0.17 miles east
02SR52483	Phase IA Archeological Sensitivity Assessment and Phase IB Archeological Field Investigation, Cranberry Hills Residential Subdivision, Town of Wappinger, Dutchess County, New York	2002 - Hartgen Archeological Assoc. Inc.	0.12 miles north
02SR52646	Phase II Archeological Site Evaluation, Cranberry Hills Residential Subdivision, Town of Wappinger, Dutchess County, New York	2002 - Hartgen Archeological Assoc. Inc.	0.12 miles north
08SR58911	Phase I Cultural Resource Investigation Proposed Dutchess Community Living, Town of Wappinger, Dutchess County, New York	2008 – Joe Diamond	0.25 miles southwest
17SR00623	Phase IA Archeological Investigation, Dutchess County Airport Obstruction Removal Project	2017 – Andre Krievs	0.82 miles northeast
22SR00126	Phase II Archeological Site Evaluation, Myers Run Subdivision, Myers Corners Road, Town of Wappinger, Dutchess County, New York	2022 - Hartgen Archeological Assoc. Inc.	0.89 miles east
22SR00141	Phase II Archeological Site Evaluation, Myers Run Subdivision, Myers Corners Road, Town of Wappinger, Dutchess County, New York	2022 - Hartgen Archeological Assoc. Inc.	0.89 miles east

Table 3. Projects Closed within One Mile of the Project Site

Survey Number	Project Name	Distance to Project
15PR05809	Spout Creek Tributary 1 LOMR	0.65 miles south
17PR04652	Grace Bible Church Expansion	0.18 miles southwest
17PR07939	G Line South Transmission Line Retirement Project	0.92 miles northeast
17PR07941	TV Transmission Line Rebuild Project	0.10 miles west
17PR07942	KM Transmission Line Rebuild Project	0.10 miles west
18PR06315	2018 District wide renovations Wappingers CSD Phase 3.1	0.22 miles southwest
21PR04444	Myers Run Subdivision	0.89 miles east

Based on the review of CRIS, there are four architectural resources identified within a one-mile radius of the Project Site (**Table 4**). Two of these structures are not eligible for listing on the NRHP and the NRHP eligibility of the remaining two has not been determined.

Table 2: Previously Identified Historic Architectural Resources within One Mile

USN	Name	Address	Status	Distance to Project
02719.000008	Unnamed	158 Myers Corners Rd, Wappinger	Not Eligible	0.19 miles southwest
02719.000260	Joseph Thurston House	Degarmo Hills Rd, Wappinger	Undetermined	0.62 miles northeast
02719.000263	Myers Corners	156 Myers Corners Rd,	Not Eligible	0.30 miles southwest

Table 2: Previously Identified Historic Architectural Resources within One Mile

USN	Name	Address	Status	Distance to Project
	Elementary School	Wappinger		
02719.000302	Unnamed	209 All Angels Hill Rd, Wappinger	Undetermined	0.83 miles northwest

TRC looks forward to receiving your review of this information to determine if additional consultation or further study of potential Project effects is warranted. Should you have any questions or require additional information, please do not hesitate to contact me at (207) 215-2872, or kemack@trccompanies.com.

Sincerely yours,

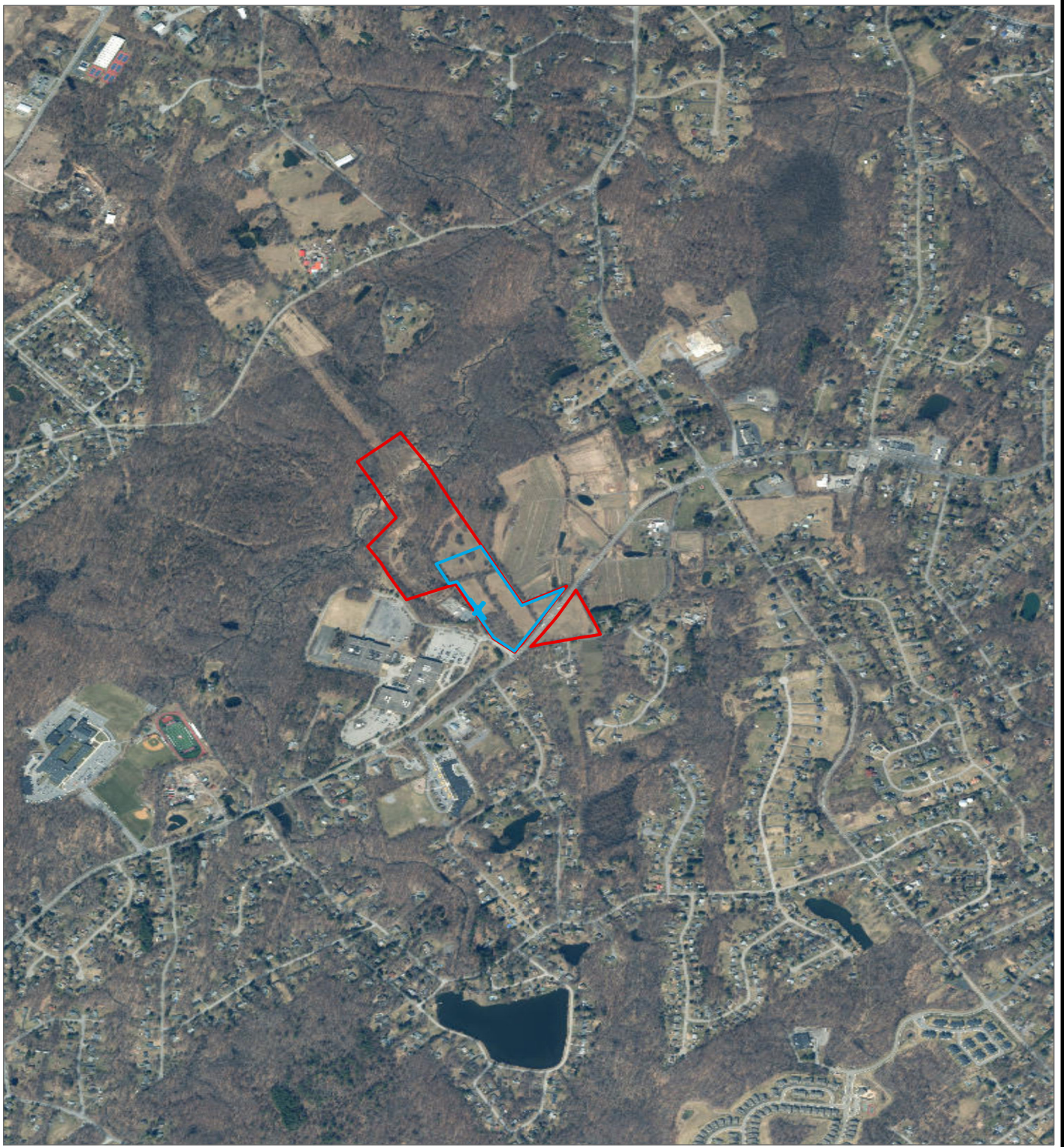


Karen E. Mack,
Operations Manager, Cultural Resources

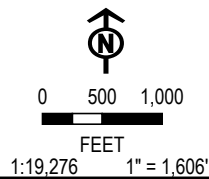
cc: Joshua Lazarus, TRC
Sarah Bean Apmann, TRC
Sam Bailly, Lightstar Renewables

Enc.


COORDINATE SYSTEM: GCS WGS 1984; MAP ROTATION: 0
- SAVED BY: A.YOUNG ON 6/7/2022 12:45:39 PM; FILE PATH: C:\USERS\AYOUNG\ONE\DRIVE - TRC\DOCUMENTS\ARC GIS\PROJECTS\OLD MYERS CORNERS ROAD\OLD MYERS CORNERS ROAD.APRX; LAYOUT NAME: 8.5X11P_INSET



- PROJECT APE
- PARCEL BOUNDARY



BASE MAP: USGS COLOR ORTHO IMAGERY
DATA SOURCES: TRC

PROJECT: LIGHTSTAR RENEWABLES OLD MYER SOLAR PROJECT		
TITLE: PROJECT LOCATION		
DRAWN BY: ABBIE YOUNG	PROJ. NO.: 488729.1800	
CHECKED BY: KAREN MACK	FIGURE 2	
APPROVED BY: KAREN MACK		
DATE: JUNE 2022		
		1356 WASHINGTON STREET SUITE A BATH, ME 04530
FILE:		OLD MYERS CORNERS ROAD

Attachment E

NYSDEC Project Consultation



10 Maxwell Dr., Suite 200
Clifton Park, NY 12065

T 518.348.1190
TRCcompanies.com

December 20, 2022

Regional Permit Administrator

John Petronella
NYSDEC
21 South Putt Corners Rd.
New Paltz, NY 12561-1620
Phone: 845-256-3054
Fax: 845-255-4659
Email: dep.r3@dec.ny.gov

**Subject: Lightstar Renewables
Old Meyer Solar Project
Town of Wappinger, Dutchess County, New York
Permitting Information Request**

Dear Mr. Petronella,

Lightstar Renewables (Lightstar) proposes the installation of a ground mounted solar system (Project) at the Old Meyer Solar Project site (Project Site). Although it is still in the planning phase, the Project is community solar "Agrivoltaic" project and is expected to generate approximately 2 megawatt (MW) alternating current (AC). The Project Site is located on Myers Corners Road in the Town of Wappinger, Dutchess County, New York and is within the Wappingers Falls NY US Geological Survey (USGS) 7.5 Minute Topographic Quadrangle (see Figure 1).

A site location map is included with this letter. The Project Site consists of existing agricultural land mixed with forested hedge and is surrounded by commercial and suburban development, agriculture, and forested land. The Project Site is an active agricultural field predominately used for hay production. Lightstar is proposing a dual use agrivoltaic design for the Project and therefore the land use of the area will remain agricultural.

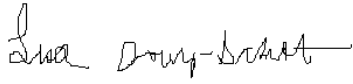
The construction of the Project will include an access road, solar panel installation, and perimeter fencing. The project site is approximately 14.32-acres of the 38-acre parcel is proposed to be disturbed as part of Project construction.

TRC is requesting a summary of all permits that may be required by the NYSDEC for approval of this Project. The information derived from this request will support environmental assessments and due diligence. Based on information displayed from ERM, we are also submitting a NYNHP data request to confirm the locations of state listed species. TRC can provide a shapefile (SHP) of the Old Meyer Solar Project to assist in your review if requested.

Lightstar has consulted with the NY State Office of Parks, Recreation, and Historic Preservation (OPRHP) and received a letter from OPRHP, dated July 12, 2022, and will complete a Category 1 Historic Architectural Survey based on OPRHP's Guidelines for solar arrays covering less than 50 acres

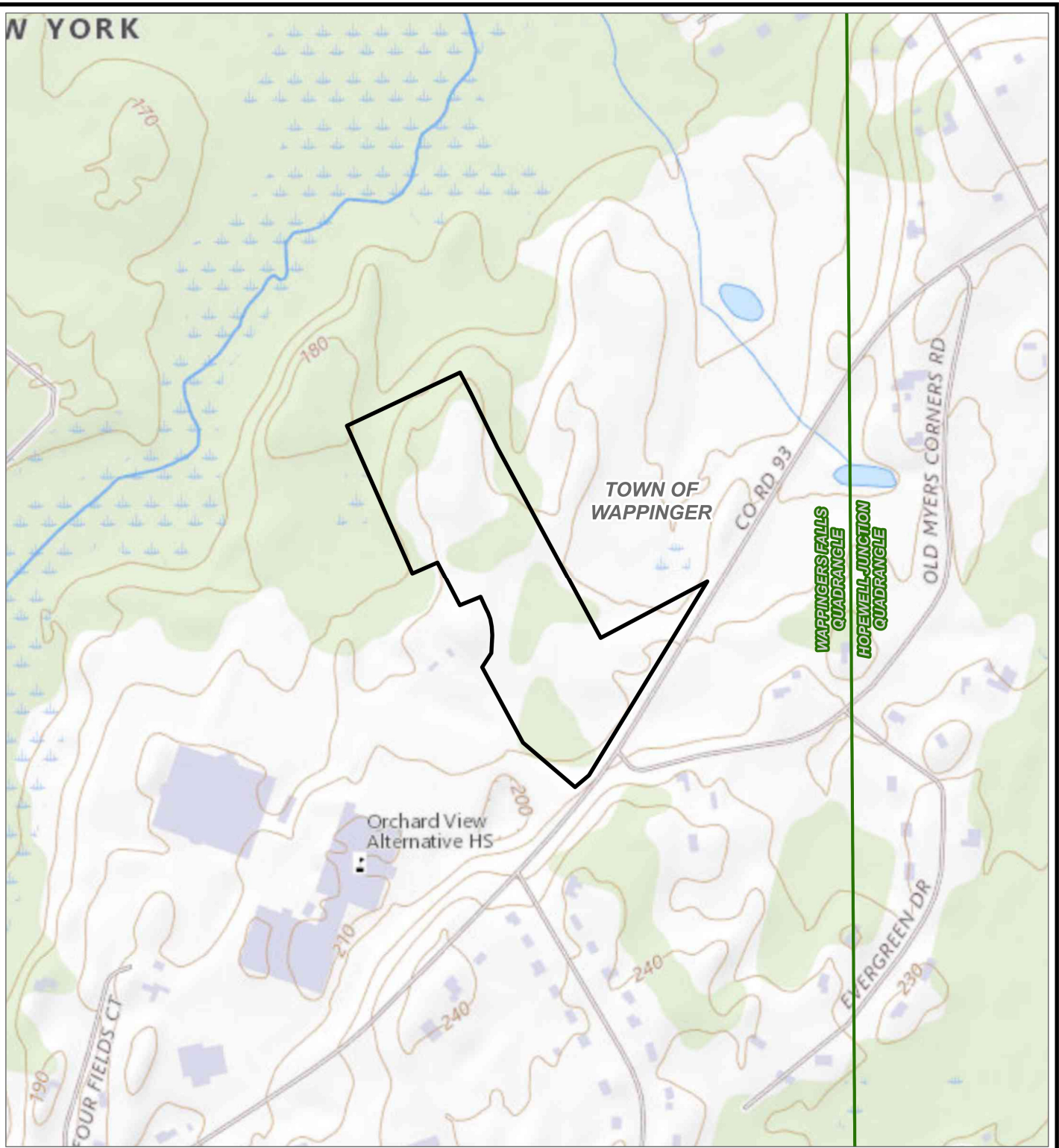
If you have any questions regarding the Project or the request herein, please contact me at TRC by calling 315.430.9190 or via email at LDowningSchmidt@trccompanies.com.

Sincerely,



Lisa Downing-Schmidt
Senior Environmental Scientist

Figures: Figure 1. Site Location Map



PROJECT BOUNDARY	USGS 24K QUADRANGLE BOUNDARY	 0 250 500 FEET 1:6,000 1" = 500'	PROJECT: LIGHTSTAR RENEWABLES, LLC	
			TOWN OF WAPPINGER, DUTCHESS COUNTY, NEW YORK	
			TITLE: SITE LOCATION MAP	
			DRAWN BY: A. KAILAS	PROJ. NO.: 488729.1794
			CHECKED BY: M. MUSARRA	FIGURE 1
			APPROVED BY: J. LAZARUS	
BASE MAP: USGS 24K TOPOGRAPHIC MAP SERVICE (THE NATIONAL MAP) DATA SOURCES: USGS, ESRI, TRC, LSR			DATE: DECEMBER 2022	
			10 MAXWELL DRIVE CLIFTON PARK, NY 12065 PHONE: 518-348-1190	
			FILE: LIGHTSTAR_MEYER	

COORDINATE SYSTEM: NAD 1983 STATEPLANE NEW YORK EAST FIPS 3101 FEET; MAP ROTATION: 0
-- SAVED BY: AKAILAS ON 12/29/2022, 14:31:24 PM; FILE PATH: \\EMPLOYEES\GIS\ARCS\PROJ1-PROJECTS\LIGHTSTAR SOLAR\488729 1753 OLDMEYER SOLAR\2-APRXLIGHTSTAR MEYER.APRX; LAYOUT NAME: FIG1 MEYER SITE LOCATION

Attachment E

Wetland/Waterbody Delineation Report



**WETLAND AND STREAM DELINEATION REPORT
OLD MYERS SOLAR**

**TOWN OF WAPPINGER
DUTCHESS COUNTY, NEW YORK**

Prepared For:

LIGHTSTAR

Lightstar Renewables
501 Boylston Street
Boston, MA 02116

Prepared By:

 **TRC**

TRC Companies, Inc.
10 Maxwell Drive, Suite 200
Clifton Park, NY 12065

August 2022, Revised December 2022

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TABLES

Table 1. Mapped Soils within the Project Lease Area

Table 2. Delineated Wetlands within, and immediately adjacent to, the Project Lease Area

APPENDICES

Appendix A – Figures

Figure 1. Site Location Map

Figure 2. Soils Map

Figure 3. Federal and State Mapped Resources

Figure 4. Delineated Resources

Appendix B – Photograph Log

Appendix C – Data Forms

Wetland and Stream Determination Data Forms

1.0 INTRODUCTION

1.1 Project Description

Old Myers NY LLC (Applicant) is proposing a 2 megawatt, alternating current (MWac) community solar project located in the Town of Wappinger, Dutchess County, New York (Project). The Project is sited on a 14.32-acre leased portion (Project Lease Area) of a 38-acre parcel (Project Parcel), tax map# 6258-03-376432. The construction of the Project will include an access road, solar facility installation, and perimeter fencing and landscaping.

1.2 Report Purpose

This document presents the results of a wetland and stream delineation conducted by TRC on behalf of the Applicant on June 10, 2022 and October 19, 2022. This report was prepared to document all wetlands and surface waters (including rivers, streams, ponds, lakes, etc.) regardless of jurisdictional status. Specific tasks undertaken to prepare this report included:

- (1) a desktop review of existing and publicly available federal and state agency resources
- (2) a field delineation of all surveyed aquatic features within, and immediately adjacent to, the Project Lease Area utilizing a handheld Global Positioning System (GPS) with reported sub-meter accuracy
- (3) the development of a detailed description of the delineated wetland and other aquatic features including any assumed level of government agency jurisdiction for each resource based on hydrology, vegetation, and hydric soils data collected in the field

Wetland resources documented during the site visits are included in this report. Conclusions proposed herein provide information necessary to support a permit application to the United States Army Corps of Engineers (USACE or Corps) and the New York State Department of Environmental Conservation (NYSDEC).

2.0 REGULATORY AUTHORITY

2.1 United States Army Corps of Engineers

In accordance with Section 404 of the Clean Water Act (CWA), the USACE asserts jurisdiction over Waters of the United States (WOTUS). WOTUS are defined as wetlands, streams, and other aquatic resources under the regulatory authority of Title 33 Code of Federal Regulations (CFR) Part 328 and the United States Environmental Protection Agency (EPA) per Title 40 CFR Part 230.3(s). Wetlands are defined as *“those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions”* (EPA, 2001).

On June 22, 2020, the Navigable Waters Protection Rule took effect, replacing the prior Clean Water Rule. The Navigable Waters Protection Rule (NWPR) outlined categories of waters considered jurisdictional, as well as those considered non-jurisdictional. On August 30, 2021, the U.S. District Court for the District of Arizona issued an order vacating and remanding the NWPR, nationwide.

In accordance with a September 2, 2021 directive from the Acting Assistant Secretary of the Army for Civil Works, the Corps has resumed conducting approved jurisdictional determinations (AJDs) nationwide, consistent with the pre-2015 waters of the U.S. (WOTUS) regulatory regime. The pre-2015 regulatory regime is the 1986 WOTUS regulation, as informed by previously-issued 2003 SWANCC and 2008 Rapanos guidance documents resulting from US Supreme Court decisions.

2.1.1 Historical Context

On June 5, 2007, the EPA and the Department of Army issued a memorandum outlining jurisdictional guidance on WOTUS. The document outlined major key points resulting from the United States Supreme Court decision in the matter of *Solid Waste Agency of Northern Cook County v. Army Corps of Engineers* (531 U.S. 159, January 9, 2001) and *Rapanos v. United States* (547 U.S. 715, June 19, 2006). This document defined the federal jurisdiction over WOTUS relative to the Clean Waters Act.

Applying this approach, the USACE asserted jurisdiction over Traditional Navigable Waters (TNW), and adjacent wetlands, as well as certain non-navigable tributaries of TNW that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (i.e., typically three months); and wetlands that directly abut such tributaries.

The USACE decided jurisdiction on a case-by-case basis, applying a significant nexus determination over certain other classes of water. Swales or erosional features and certain ditches are generally not determined to be jurisdictional.

Clean Water Rule

On August 28, 2015, the EPA released the Clean Water Rule (33 CFR Part 328) intending to clarify the scope of the Clean Water Act (CWA), WOTUS, and definitions of significant nexus. However, on October 9, 2015, implementation of the Clean Water Rule was stayed by the Sixth Circuit Court of Appeals pending further action of the court. On August 16, 2018, the U.S. District Court for the District of South Carolina enjoined the delay of the Clean Water Rule. Therefore, the Clean Water Rule went into effect in 22 states, including New York.

On October 22, 2019, the 2015 CWR was repealed, pending a required 60-day public notification period. This repeal was step one of a two-step rule-making process intended to (re)define the scope of waters of the United States that are regulated under the Clean Water Act. The repeal of the CWR became effective on December 23, 2019. On that date, the definition of WOTUS reverted to the historical context of the pre-2015 timeframe (the “Rapanos Approach”). The Rapanos Approach was intended as a temporary replacement. An intended permanent replacement, now referred to as the NWPR, is considered Step Two in the two-step repeal and replace process. The NWPR was published in the April 21, 2020 Federal Register, and took effect on June 22, 2020.

2.1.2 Current Status

The USACE (and EPA) may assert jurisdiction over certain activities that occur in the following waters:

- Traditional navigable waters
- Wetlands adjacent to traditional navigable waters
- Non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months)
- Wetlands that directly abut such tributaries

The agencies will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a traditional navigable water, including one of the following:

- Non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to but that do not directly abut a relatively permanent non-navigable tributary

The agencies generally will not assert jurisdiction over the following features:

- Swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow)
- Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water

The agencies may apply the significant nexus standard as follows:

- A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters.
- Significant nexus includes consideration of hydrologic and ecologic factors.

2.2 New York State Department of Environmental Conservation

The Freshwater Wetlands Act [Article 24 and Title 23 of Article 71 of New York's Environmental Conservation Law (ECL)] gives the NYSDEC jurisdiction over state-protected wetlands and an adjacent 100-foot protective upland buffer area. To implement this Act, regulations were promulgated by the state under 6 New York Codes, Rules, and Regulations (NYCRR) Parts 663 and 664.

Part 663 establishes regulations that: (1) define the procedural requirements to be followed in undertaking different activities in wetlands and in areas adjacent to wetlands; (2) establish standards governing the issuance of permits by the department pursuant to the act; and, (3) govern the department's implementation of the act. Part 664 of the regulations designates wetlands into four class ratings, with Class I being the highest or best quality wetland and Class IV being the lowest. In general, wetlands regulated by the state are those 12.4 acres (5 hectares) in size or larger. The NYSDEC can regulate smaller wetlands, including those without connections to other aquatic resources if they are of "unusual local importance." The Freshwater Wetlands Act requires the NYSDEC to map all state-protected wetlands to allow landowners and other

interested parties a means of determining where state jurisdictional wetlands exist. Authority under an Article 24 permit is required from the NYSDEC for any disturbance to a state-protected wetland or the adjacent buffer area, including the removal of vegetation.

Article 15 of the ECL (Protection of Waters) provides the NYSDEC with regulatory jurisdiction over any activity that disturbs the bed or banks of protected streams. Small lakes and ponds with a surface area of 10 acres or less, located within the course of a protected stream, are part of a stream and are subject to regulation under the stream protection category of Article 15. A protected stream is defined in the ECL as any stream, or portion of a stream, that has been assigned by the NYSDEC any of the following classifications or standards: AA, A, B, C(T), or C(TS) (6 NYCRR Part 701). State water quality classifications of unprotected watercourses include Class C and Class D waterbodies. These classifications are defined as follows:

- A classification of AA or A indicates that the best use of the stream is as a source of water supply for drinking, culinary or food processing purposes, primary and secondary contact recreation, and fishing.
- The best usages of Class B waters are primary and secondary contact recreation and fishing.
- The best usage of Class C waters is fishing.
- Streams designated (T) indicate that they support trout, while those designated (TS) support trout spawning.
- Waters with a classification of D are suitable for fishing and non-contact recreation.

Per 6 NYCRR Chapter X, Subchapter B, *“All streams or other bodies of water which are not shown on the reference maps herein shall be assigned to Class D, as set forth in Part 701, supra, except that any continuous flowing (perennial) natural stream which is not shown on the reference maps shall have the same classification and assigned standards as the waters to which it is directly tributary.”* An Article 15 permit is required from the NYSDEC for any disturbance to a stream classified or with applicable classification and/or standard as C(T) or higher.

3.0 WETLAND AND STREAM DELINEATION METHODOLOGY

Prior to initiating field investigations, TRC conducted a desktop review of publicly available data to determine the potential presence of federal and state mapped wetlands and streams within, and immediately adjacent to, the Project Lease Area. A TRC wetland scientist subsequently performed field investigations to identify aquatic features within, and immediately adjacent to, the Project Lease Area. The field investigation was performed by lead TRC wetland scientist, Melanie Musarra, along with a TRC GPS technician.

Delineations for wetlands were performed in accordance with criteria set forth in the 1987 Manual (Environmental Laboratory, 1987) and the 2012 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0)* (USACE, 2012) (Supplement). Data was collected from a sample plot in each delineated wetland. Depending on the size of the delineated area and any change in cover type, multiple sample plots of the delineated wetland may have been taken. Delineation data was recorded on USACE Wetland Determination Forms (Appendix C). The boundaries of wetlands were demarcated with pink survey ribbon labeled “wetland delineation” and located with a GPS unit with reported sub-meter accuracy.

3.1 Hydrology

The presence of wetland hydrology is determined based on primary and secondary indicators established by the USACE. The 1987 Manual defines the presence of wetland hydrology when at least one primary indicator or two secondary indicators are identified. Wetland hydrology is present if one or more primary indicator is present; however, if primary indicators are absent, two or more secondary indicators are required to determine the presence of wetland hydrology. If other probable wetland hydrology evidence was found on-site, then such characteristics were subsequently documented on the USACE Wetland Determination Form. Wetland hydrology indicators are grouped into 18 primary and 11 secondary indicators as presented in the Supplement.

Wetland hydrology may influence the characteristics of vegetation and soils due to anaerobic and reducing conditions (Environmental Laboratory, 1987). This influence is dependent on the frequency and duration of soil inundation or saturation which, in turn, is dependent on a variety of factors including topography, soil stratigraphy, and soil permeability, in conjunction with precipitation, runoff, and stormwater and groundwater influence.

3.2 Vegetation

Hydrophytic vegetation is defined in the 1987 USACE Manual as:

“...the sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present.”

Plants are categorized according to their occurrence in wetlands. Scientific names and wetland indicator statuses for vegetation are those listed in *The National Wetland Plant List: 2018 Wetland Ratings* (U.S. Army Corps of Engineers, 2018) (NWPL). Due to regional differences in wetland vegetation, among other characteristics, the USACE divided the U.S. into regions to improve the accuracy and efficiency of wetland delineations. The indicator statuses specific to the “Northcentral and Northeast Region” as defined by the USACE apply to the Project Lease Area. The official short definitions for wetland indicator statuses are as follows:

- Obligate Wetland (OBL) - Almost always occur in wetlands
- Facultative Wetland (FACW) - Usually occur in wetlands but may occur in non-wetlands
- Facultative (FAC) - Occur in wetlands and non-wetlands (50/50 Mix)
- Facultative Upland (FACU) - Usually occur in non-wetlands but may occur in wetlands
- Upland (UPL) - Almost never occur in wetlands

For species with no indicator status in the Project Lease Area’s region, the indicator status assigned to the species in the nearest adjacent region is applied. Plants that are not included on the NWPL within the Project Lease Area’s region, nor an adjacent region, are given no indicator status, and are not included in dominance calculations. Plants that are not listed in any region on the NWPL are considered as UPL on USACE Wetland Determination Forms.

Vegetation in both upland and wetland communities was characterized using areal methods for instituting plot measurement. In accordance with USACE methodology, a plot radius of 30 feet around the soil sample location was applied to tree species, a 15- foot radius for saplings/shrubs, and a 5-foot radius was utilized for herbaceous plants. After the measurement of percent coverage was determined for each species, an application of the 50/20 rule of dominance determination was utilized to define the presence or absence of overall hydrophytic dominance at sample plots. In using the 50/20 rule, the plants that comprise each stratum are ranked from highest to lowest in percent cover. The species that cumulatively equal or exceed 50 percent of

the total percent cover for each stratum are dominant species, and any additional species that individually provides 20 percent or more percent cover is also considered a dominant species of its respective strata. The total cover for each stratum, and subsequently the plot, could exceed 100 percent due to vegetation overlap.

Cover types are also assigned to each wetland. The delineated resources were classified in accordance with the system presented in *The Classification of Wetlands and Deepwater Habitats of the United States, Second Edition* (Federal Geographic Data Committee [FGDC], 2013). Field biologists assign cover types to wetlands based on this classification standard and utilize this document.

3.3 Soils

Hydric soil indicators were determined utilizing the Supplement with added provision from the *Field Indicators of Hydric Soils in the United States: A Guide for Identifying and Delineating Hydric Soils*, Version 8.2 (USDA NRCS, 2018). Soil characteristics were documented, such as matrix color, layer depth, presence of organic/peat layers, and evidence of redoximorphic features, which may include indicators such as reduction, oxidation, gleyed matrices, manganese features, and hydrogen sulfide odor. Soil test pits were dug using a spade shovel to a depth of approximately 20 inches or more. Refusal of soil sample to 20 inches occurred in some instances due to the presence of hardpan layer, rock, or hard fill materials and was documented. Soil color was described using the *Munsell Soil Color Book* (Munsell Color, 2015). Texture was determined using the USDA feel method (Thien 1979).

Hydric soil indicators applicable to the Project Lease Area were determined using the *Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin* (MLRA Handbook) (NRCS 2006). Per the MLRA Handbook, the Project Lease Area is within Major Land Resource Area 144A (New England and Eastern New York Upland, Southern Part) of Land Resource Region (LLR) R (Northeastern Forage and Forest Region). Hydric soil indicators that do not apply to this MLRA were not considered on the wetland determination data forms

3.4 Streams

Streams within the Project Lease Area were identified by the presence of an ordinary high-water mark (OHWM), which is the line established by the fluctuations of water (33 CFR 328.3). The OHWM, where not established and available by public record, is indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the

character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other characteristics of the surrounding areas.

Streams greater than 6 feet wide were delineated from bank to bank and points of the delineated boundaries were located with a handheld GPS unit set for sub-meter accuracies. For streams less than 6 feet wide, only the centerline was mapped to maintain accurate representation of stream sinuosity for planning and impact calculation purposes as sub-meter GPS point capture and post-processing (differential correction) may yield imprecise stream bank measurements due to the narrow nature of the stream. Stream attributes including width, bank height, and water depth are measured and documented on TRC's Stream Data Forms (Appendix C).

4.0 PHYSICAL SITE CHARACTERISTICS

4.1 Resources

The following publicly available resources were used in the investigation, delineation, and report preparation:

- United States Geological Survey (USGS) Wappingers Falls, New York 7.5-minute quadrangle
- United States Department of Agriculture (USDA) Ecoregion Maps
- USGS National Hydrography Dataset
- USGS Hydrologic Unit Maps
- Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panel 36027C0457E, effective 5/2/2012
- United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) mapping
- NYSDEC Environmental Resource Mapper (ERM)
- NYSDEC Freshwater Wetlands Mapping
- USDA Natural Resources Conservation Service (NRCS) Web Soil Survey
- Recent aerial orthoimagery

4.2 Vegetation and Ecological Communities

The Project Lease Area resides in the Eastern Broadleaf Forest (Oceanic) province and the Hudson Valley ecoregion (Bailey et al., 1995) of the United States as defined by the USDA Forest Service. Ecoregions are ecosystems of regional extent. The USDA identifies ecoregions by ecosystem characteristics into the following classifications:

- Domains - the largest ecosystem, which are groups of related climates and which are differentiated based on precipitation and temperature.
- Divisions - represent the climates within domains and are differentiated based on precipitation levels and patterns as well as temperature.
- Provinces - Subdivisions of divisions, which are differentiated based on vegetation or other natural land covers.

- Sections - Subdivisions of provinces based on terrain features; sections are the finest level of detail described for each subregion.
- Mountainous Areas - Mountainous areas that exhibit different ecological zones based on elevation.

The Eastern Broadleaf Forest (Oceanic) province is characterized by variable topography, ranging from plains and low hills along the Atlantic coast to the glaciated high hills and mountainous areas toward the interior of the province. Vegetation is characterized by tall, cold-deciduous broadleaf forests that have a high proportion of mesophytic species and provide dense, continuous canopy in the summer and shed their leaves completely in the winter. Vegetation consists of maple-beech-birch, oak-hickory, and aspen-birch cover types. Bedrock is a mixture of carbonates, shales, siltstones, and sandstones with areas of metasediments and metavolcanics (McNab et al., 2007).

Recent aerial orthoimagery of the Project Lease Area and surrounding vicinity indicates that the Project Lease Area has been an active agricultural field. Furthermore, and based off a more in-depth site review conducted during the delineation effort, the Project Lease Area contains the three ecological communities as defined by *Ecological Communities of New York State* (Edinger et al. 2014): unpaved road/path, cropland/field crops, and successional northern hardwoods.

4.3 Topography and Soil Characteristics

Physiography and Topography

As shown on the USGS Wappingers Falls 7.5-minute quadrangles, the Project Lease Area is relatively flat, with the highest elevation in the southwestern extent. The Project Lease Area sits at an elevation range of 170 to 208 feet above mean sea level (AMSL).

Site Soils

The USDA NRCS Web Soil Survey is an online resource mapping tool that provides soil data and information for the nation. This information is produced by the National Cooperative Soil Survey (NCSS), in partnership with federal, regional, state, and local agencies and private entities and institutions.

Two soil map units were identified within the Project Lease Area (Table 1). Soil map units can represent a type of soil, a combination of soils, or miscellaneous land types. Soil map units are usually named for the predominant soil series or land types within the map unit. Due to limitations imposed by the small scale of the soil survey mapping, it is not uncommon to identify wetlands

within areas not mapped as hydric soil while areas mapped as hydric often do not support wetlands. This concept is emphasized by the NRCS:

“Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.”

Soil drainage in the Project Lease Area is well drained. None of the mapped soils are classified as very poorly drained, poorly drained, somewhat poorly drained, moderately well drained, somewhat excessively drained, or excessively drained.

The *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratories 1987) (1987 Manual) defines a hydric soil as “a soil that in its undrained condition, is saturated, flooded or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation.”

There are no soil map units within the Project Lease Area that have a hydric soil rating of 33 percent or higher, which might suggest the presence of a wetland feature (Figure 2 of Appendix A). Hydric Soil Rating indicates the percentage of map units that meet the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor non-hydric components in the higher positions on the landform, and map units that are made up dominantly of non-hydric soils may have small areas of minor hydric components in the lower positions on the landform. As such, each map unit is rated based on its respective components and the percentage of each component within the map unit. Although a soil series is given a general hydric soil rating on the online databases, this is for reference only and does not supersede site specific conditions in the field documenting hydric soil presence.

All soil map units identified within the Project Lease Area by the NRCS soil survey are outlined in Table 1. Refer to Figure 2 of Appendix A for graphically depicted soil map units of the Project Lease Area.

Table 1. Mapped Soils within the Project Lease Area

Map Unit Symbol	Map Unit Name	Slope (%)	Drainage Class	Hydric Rating (%)	Acres in Project Lease Area	Percent of Project Lease Area (%)
DwB	Dutchess-Cardigan complex, undulating, rocky	4	Well drained	1	12.21	85
DwC	Dutchess-Cardigan complex, rolling, rocky	11	Well drained	1	2.11	15
Total					14.32	100

4.4 Hydrology

Hydrologic Mapping

The USGS has divided and sub-divided the country into hydrologic units based primarily on drainage basins and watershed boundaries. The main hydrologic unit levels are regions, sub-regions, basins, sub-basins, watersheds, and sub-watersheds. The hydrologic units are nested within each other, from the largest geographic area (regions) to the smallest geographic area (sub-watersheds). Each hydrologic unit is identified by a unique hydrologic unit code (HUC) consisting of two to twelve digits based on the six levels of classification in the hydrologic unit system. In addition to the HUCs, each hydrologic unit is assigned a name corresponding to the unit's principal hydrologic feature, or to a cultural or political feature within the unit.

The region hydrologic unit level contains either the drainage area of a major river or the combined drainage areas of a series of rivers. Regions receive a two-digit code. The following hydrologic unit levels are designated by the addition of another two digits with each level. Each sub-region includes the area drained by a river system, a reach of a river and its tributaries in that reach, a closed basin or basins, or a group of streams forming a coastal drainage area.

The Project Lease Area is located within the USGS defined Hudson-Wappinger sub-basin (HUC-8 02020008), Wappinger Creek (HUC-10 0202000802), and Wappinger Lake-Wappinger Creek (HUC-12 020200080206) watersheds.

The NYSDEC also classifies watersheds more generally within the State of New York. Unlike mapping efforts outlined by the USGS above, the NYSDEC utilizes the definitions of watersheds and drainage basins interchangeably. New York's waters (lakes, rivers, wetlands, streams etc.) were determined to fall within one of 17 major drainage basins as defined by the NYSDEC. The

NYSDEC defines these drainage basins or watersheds as an area of land that drains water into a specific key body of water within or adjacent to the State of New York and includes networks of rivers, streams, and lakes and the land area surrounding them. The NYSDEC classified watersheds are separated by high elevation geographic features (mountains, hills, ridges). Correspondingly, each major drainage basin is entirely defined and subdivided by a collection of associated USGS sub-basins (USGS HUC-8 codes). The Hudson-Wappinger sub-basin (HUC-8 02020008) corresponds to the Lower Hudson major drainage basin.

The Project Lease Area is located within the Lower Hudson watershed. This area is approximately 12,800 square miles and drains the area between Battery at the southern end of Manhattan to the Troy Dam at the confluence of the Mohawk River. The Lower Hudson watershed has 4,982 square miles of land area, and 8,861 miles of freshwater rivers and streams within New York State (NYSDEC, 2022).

Hydrologic Character

The most dominant surface waterbody near the Project Lease Area is the Wappinger Creek, which flows northeast to southwest, and is located approximately 1.43 miles northwest of the Project Lease Area. Although the Project Lease Area has relatively flat topography, runoff is likely to end up in the Wappinger Creek.

On average, the Project Lease Area receives 44.08 inches of precipitation annually based on information stored for the Town of Poughkeepsie which is approximately 7 miles northwest of the Project Lease Area (U.S. Climate Data, 2022).

FEMA Flood Zone Mapping

FEMA maintains materials developed to support flood hazard mapping for the National Flood Insurance Program (NFIP). According to FIRM panel 36027C0457E, effective 5/2/2012, the Project Lease Area is in an area of minimal flood hazard (Zone X).

4.5 Federal and State Mapped Wetlands and Streams

The USFWS is the principal agency tasked with providing information to the public on the status and trends of wetlands on a national scale. The USFWS NWI is a publicly available resource that provides detailed information on the abundance, characteristics, and distribution of nationwide wetlands (where mapped). NWI wetlands do not exclusively carry any federal jurisdiction with their mapped boundaries. These wetlands are utilized as a reference guide by TRC field biologists to conduct a more informed site survey in the delineation of wetlands and streams potentially

subject to federal jurisdiction under the CWA within, and immediately adjacent to, the Project Lease Area.

Review of the NWI mapping during the preliminary desktop analysis indicated that there are no wetland features within the Project Lease Area (Figure 3 of Appendix A).

Review of NYSDEC mapping through access to the online NYSDEC ERM indicates that there are no NYSDEC-mapped freshwater wetlands mapped within the Project Lease Area. The nearest state-mapped wetland is feature WF-25 (Class III) approximately 300-feet to the north of the Project Lease Area. There are no NYSDEC-mapped streams within the Project Lease Area.

5.0 RESULTS

5.1 General Overview

The Project Lease Area is an active agricultural field comprised of hay pasture and forested hedgerows. Dominant vegetation within the Project Lease Area includes fields of red clover (*Trifolium pratense*), Kentucky bluegrass (*Poa pratensis*), tall buttercup (*Ranunculus acris*). Hedgerows are dominated by tree of heaven (*Ailanthus altissima*), white oak (*Quercus alba*), red maple (*Acer rubrum*), red oak (*Quercus rubra*), multiflora rose (*Rosa multiflora*), wrinkleleaf goldenrod (*Solidago rugosa*), Virginia creeper (*Parthenocissus quinquefolia*), and wild strawberry (*Fragaria vesca*).

Weather during the June 10, 2022 and October 19, 2022 wetland delineation visits was sunny with a light breeze. Temperatures during the delineation visits ranged between 70° and 74° F, as measured in the Town of Wappinger, New York.

TRC identified and delineated two wetlands and one stream within, and immediately adjacent to, the Project Lease Area (Figure 4 of Appendix A). Approximately 2 percent (0.27 acres) of the 14.32-acre Project Lease Area is classified as wetland. Table 2 details the wetlands delineated within the Project Lease Area. Representative photographs were taken of each delineated wetland community within, and immediately adjacent to, the Project Lease Area and are included in Appendix B. Descriptions of each wetland are provided in Section 5.2. Completed wetland determination data forms are provided in Appendix C.

5.2 Delineated Wetlands

Palustrine Emergent wetlands (PEM) – One wetland, measuring 0.04 acre, was delineated within the Project Lease Area. This feature (W-MLM-01) contained characteristics representative of a PEM wetland community. PEM wetland communities are dominated by herbaceous vegetation, comprising woody or non-woody plants that are generally less than 3.28 feet tall (Cowardin et al. 1979).

Feature W-MLM-01 is dominated by creeping Jenny (*Lysimachia nummularia*), dark green bulrush (*Scirpus atrovirens*), and woolly sedge (*Carex pellita*). The primary hydrology indicator was soil saturation (A3). Secondary indicators of hydrology were reported as geomorphic position (D2) and fac-neutral test (D5). Soil was a clayey loam and redox dark surface (F6) was reported as the sole hydric soil indicator.

Palustrine Forested wetlands (PFO) – Two wetlands (0.37 acre) delineated within, and immediately adjacent to, the Project Lease Area contained characteristics representative of a palustrine forested (PFO) wetland community. PFO wetlands are dominated by woody vegetation that typically has a diameter at breast height (DBH) of at least three inches, with an understory of shrub and herbaceous species. Understory vegetation presence readily varies, as the upper canopy of tree species may block light for extensive vegetative growth in the understory. Coniferous swamps, lowland hardwood swamps, and floodplain forests are common types of PFO wetlands. Soils in PFO wetlands are typically inundated or saturated early spring into summer. Some PFO wetlands may dry up entirely, which reveal water stain marks along the trunks of exposed tree species and shallow, buttressed root systems indicative of a period of heavy inundation events (Cowardin et al. 1979).

The PFO wetlands delineated within, and immediately adjacent to, the Project Lease Area are dominated by red maple, pin oak (*Quercus palustris*), American elm (*Ulmus americana*) and green ash (*Fraxinus pennsylvanica*) trees and saplings. The herbaceous layer is dominated by poison ivy (*Toxicodendron radicans*), purple loosestrife (*Lythrum salicaria*), white panicle aster (*Symphyotrichum lanceolatum*), sensitive fern (*Onoclea sensibilis*), and creeping Jenny. The woody vine stratum is dominated by riverbank grape (*Vitis riparia*). The primary hydrology indicators recorded within the PFO wetlands include saturation (A3), water marks (B1), sparsely vegetated concave surface (B8), and water-stained leaves (B9). Secondary indicators of hydrology observed within the PFO wetlands include stunted or stressed plants (D1), geomorphic position (D2), and fac-neutral test (D5). The PFO wetlands within, and immediately adjacent to, the Project Lease Area contain clay and clay loam soils. The hydric soil indicator is depleted below dark surface (A11).

Table 2. Delineated Wetlands on, and immediately adjacent to, the Project Lease Area

Wetland Field Designation	Cover Type Classification ¹ and Acreage			Total Wetland Acreage within, and immediately adjacent to, Project Lease Area	NWI Cover Type	NYSDEC Wetland ID	NYSDEC Wetland Class	Latitude of Centroid	Longitude of Centroid
	PEM	PSS	PFO						
W-MLM-01	0.04	-	0.23	0.27	N/A	N/A	N/A	41.601519	-73.879268
W-MLM-02	-	-	0.14	0.14	N/A	N/A	N/A	41.604538	-73.880941
Total Wetland Acreage Delineated:				0.41					

¹ PEM – palustrine emergent; PSS – palustrine scrub-shrub; PFO – palustrine forested

5.3 Delineated Streams

One stream was delineated within, and immediately adjacent to, the Project Lease Area. The stream identified and delineated on the Project Lease Area likely flows into a NYSDEC mapped stream (Class C) offsite to the northeast. Classification of streams depends on a temporal description of their usual flow regimes. Perennial streams flow year-round, except during severe drought conditions. Perennial streams can flow below the water table and receive groundwater flow from springs or other groundwater seepages and slopes. Intermittent streams flow only during certain times of the year from alternating springs, snow melts, or from runoff from seasonal precipitation events. Intermittent streams can flow above or below the water table. Ephemeral streams flow sporadically and are entirely dependent on transient precipitation from storm events or from periodic snow melts. These streams tend to flow above the water table and are often found as drainage features adjacent to, or within, the headwaters of a more major stream system.

Stream S-MLM-01 is an approximately 4-foot-wide, 0 to 6-inch deep, intermittent stream with 1-foot-high banks. Approximately 416.42 linear feet were delineated within, and immediately adjacent to, the Project Lease Area. The streambed consists primarily of cobble/gravel and silt/clay substrate. The stream originates off-site to the west and extends off-site to the northeast.

6.0 CONCLUSIONS

TRC identified and delineated two wetlands and one stream within, and immediately adjacent to the Project Lease Area during the field investigations. These features comprise 0.41 acres of wetland within the Project Lease Area. Both wetlands exhibited PFO characteristics (0.37 acres) with one wetland (W-MLM-01) also exhibiting PEM characteristics (0.04 acres), noting that the PEM portion of this wetland is frequently disturbed from ongoing agricultural activities. Wetland W-MLM-01 sits in a depression in the landscape with no definitive connections to other jurisdictional waters. Wetland W-MLM-02 lies beyond the Project Lease Area to the north.

TRC delineated one intermittent stream, totaling 416.42 linear feet, within, and immediately adjacent to, the Project Lease Area. There are no NYSDEC-mapped streams within the Project Lease Area.

There are no NWI or NYSDEC-mapped wetlands within the Project Lease Area, although the state-mapped Wetland WF-25 (Class III) lies within 500-feet to the north of the Project Lease Area.

The ultimate authority to determine wetland and waterway boundaries and jurisdiction lies with the USACE New York District and the NYSDEC. Decisions made by USACE and NYSDEC staff may result in modifications to the conclusions stated in this report. As such, TRC recommends consultation with both agencies to verify the findings presented in this report and to obtain documentation of concurrence with these findings.

7.0 REFERENCES

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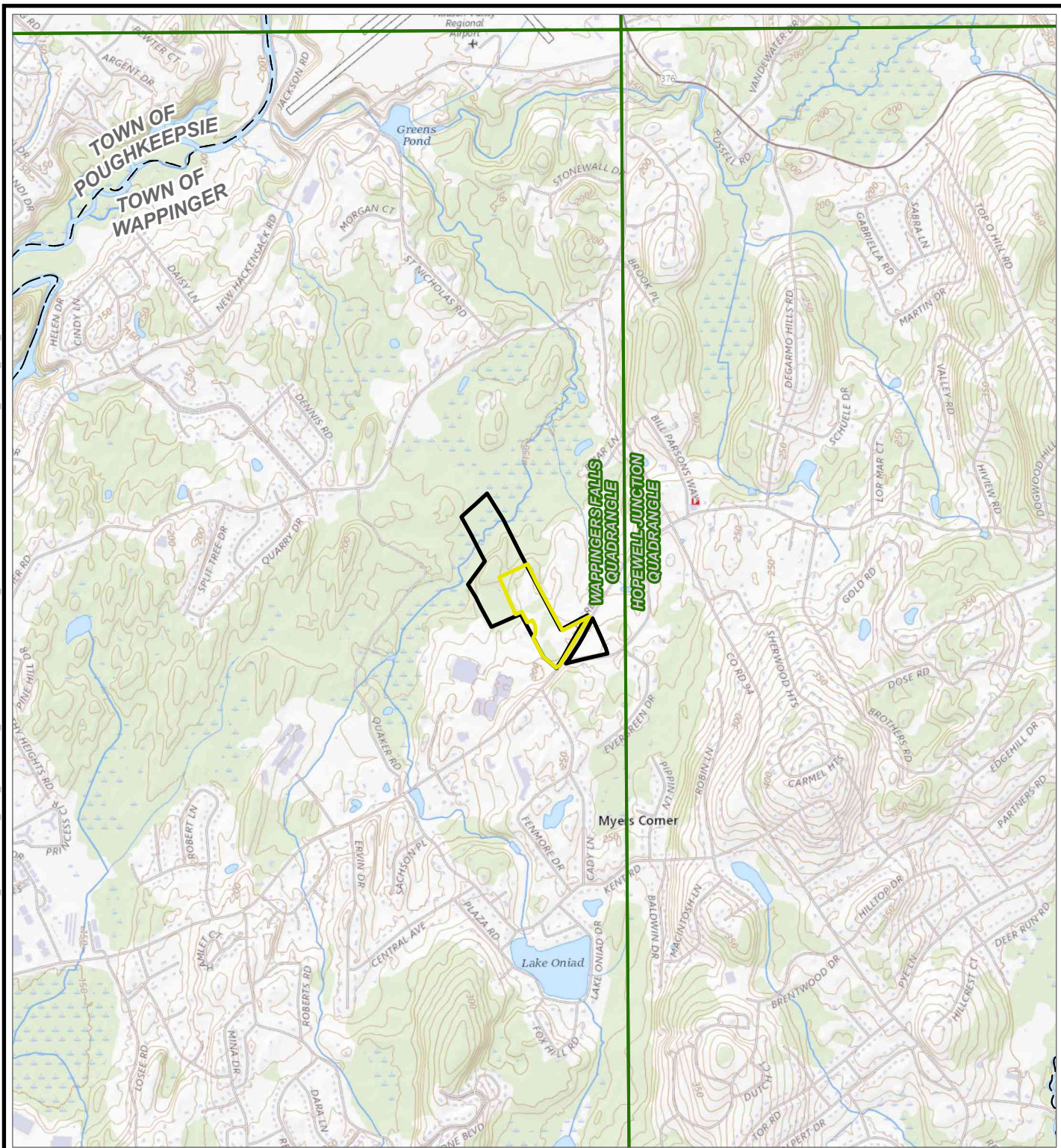
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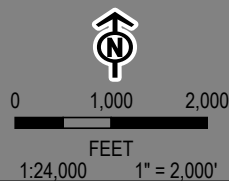
APPENDIX A

Figures

COORDINATE SYSTEM: NAD 1983 STATEPLANE NEW YORK EAST FIPS 3101 FEET, MAP ROTATION: 0
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- PROJECT LEASE AREA
- PROJECT PARCEL
- MUNICIPAL BOUNDARY
- USGS 24K QUADRANGLE BOUNDARY



PROJECT: **LIGHTSTAR RENEWABLES, LLC**
PHASE I ENVIRONMENTAL SITE ASSESSMENT
OLD MYERS SOLAR
TOWN OF WAPPINGER, DUTCHESS COUNTY, NEW YORK

TITLE: **SITE LOCATION MAP**

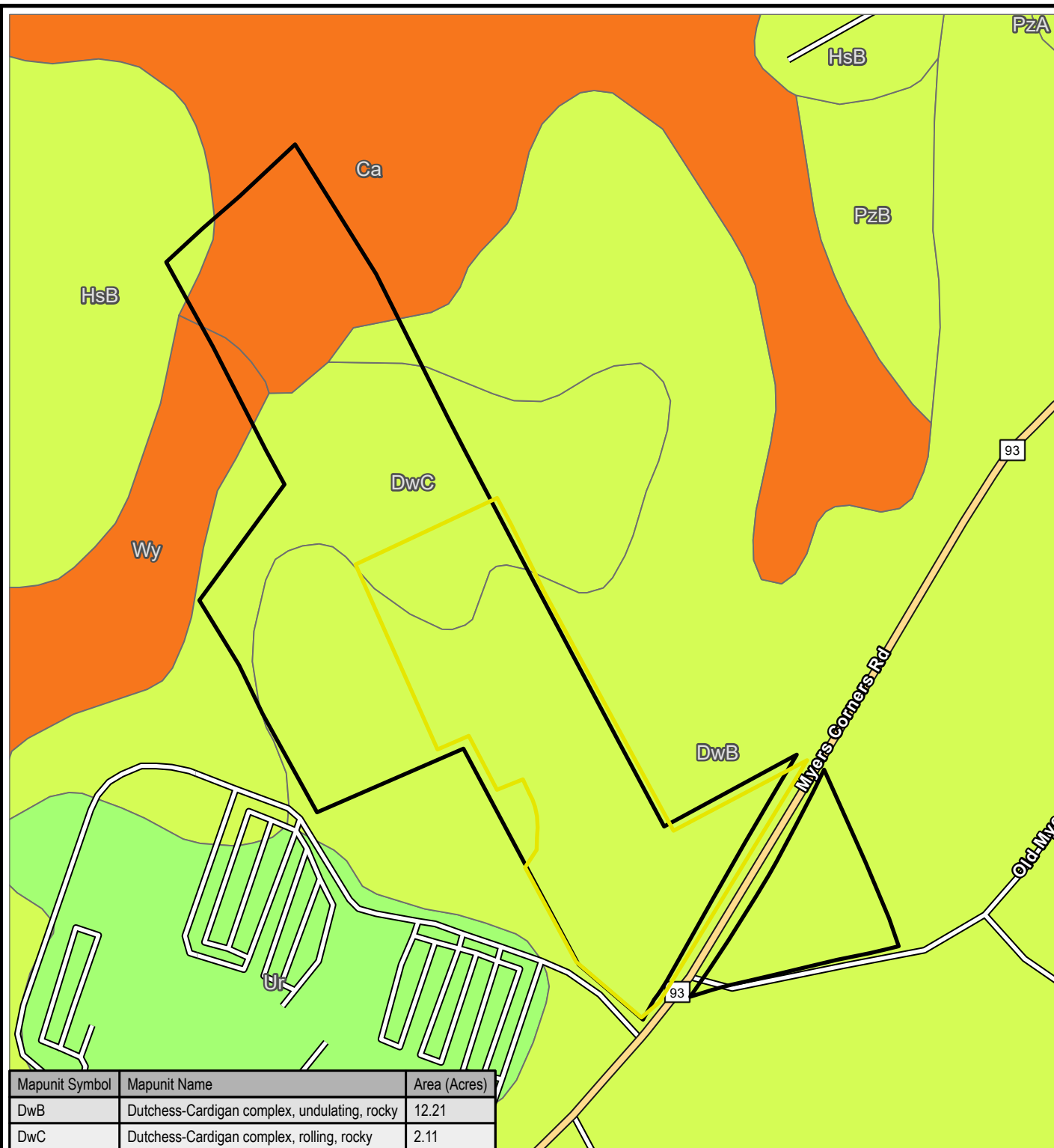
DRAWN BY:	A. KAILAS	PROJ. NO.:	488729.1794
CHECKED BY:	M. MUSARRA	FIGURE 1	
APPROVED BY:	J. LAZARUS		
DATE:	NOVEMBER 2022		

10 MAXWELL DRIVE
CLIFTON PARK, NY 12065
PHONE: 518-348-1190

BASE MAP: USGS 24K TOPOGRAPHIC MAP SERVICE (THE NATIONAL MAP)
DATA SOURCES: USGS, ESRI, TRC, LSR

FILE: **LIGHTSTAR_MEYER**

COORDINATE SYSTEM: NAD 1983 STATEPLANE NEW YORK EAST FIPS 3101 FEET, MAP ROTATION: 0
- SAVED BY: AKAILAS ON 11/29/2022, 10:19:01 AM, FILE PATH: \\EMPLOYEE\GIS\ARC\GISPROJ+PROJECTS\LIGHTSTAR SOLAR\488729_1753_OLDMEYER SOLAR\2-APRXLIGHTSTAR MEYER APPX. LAYOUT NAME: FIG2 MEYER SOILS

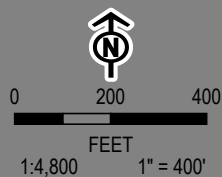


Mapunit Symbol	Mapunit Name	Area (Acres)
DwB	Dutchess-Cardigan complex, undulating, rocky	12.21
DwC	Dutchess-Cardigan complex, rolling, rocky	2.11

HYDRIC CLASSIFICATION - PRESENCE

- HYDRIC RATING (0%)
- HYDRIC RATING (1-32%)
- HYDRIC RATING (33-65%)
- HYDRIC RATING (66-99%)
- HYDRIC RATING (100%)
- PROJECT LEASE AREA
- PROJECT PARCEL

BASE MAP: ESRI WORLD IMAGERY 3/23/2021
DATA SOURCES: USGS, ESRI, NRCS, TRC



PROJECT: **LIGHTSTAR RENEWABLES, LLC**
OLD MYERS SOLAR
TOWN OF WAPPINGER, DUTCHESS COUNTY, NEW YORK

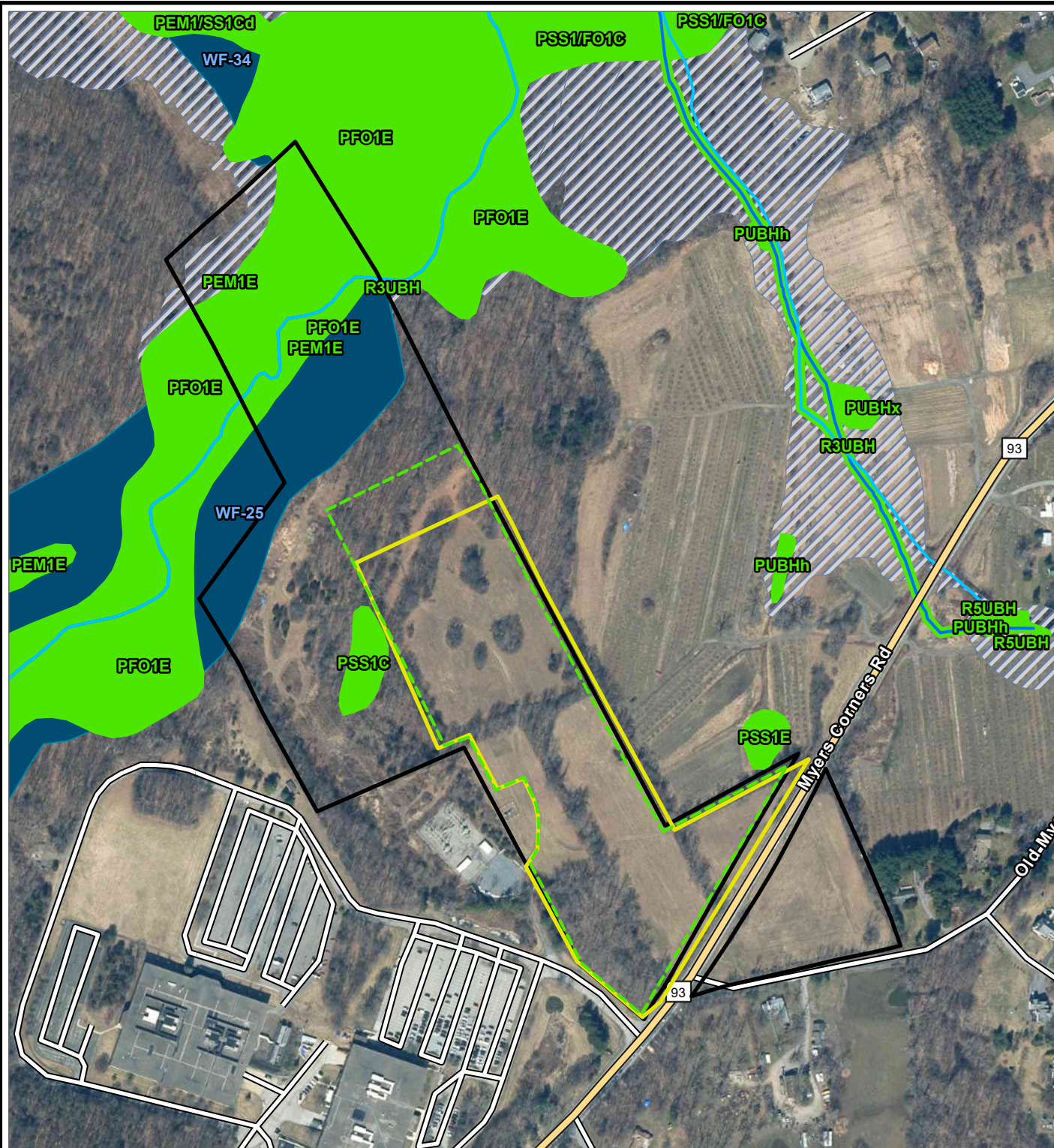
TITLE: **SOILS MAP**

DRAWN BY: A. KAILAS	PROJ. NO.: 488729.1753.0000
CHECKED BY: D. SWEENEY	FIGURE 2
APPROVED BY: M. MUSSARA	
DATE: NOVEMBER 2022	

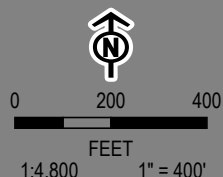
10 MAXWELL DRIVE
CLIFTON PARK, NY 12065
PHONE: 518-348-1190

FILE: LIGHTSTAR_MEYER

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- NHD STREAM/RIVER
- NYSDEC STREAM
- NYSDEC WETLAND
- NWI WETLAND
- 100 YEAR FLOODPLAIN (FEMA)
- PROJECT LEASE AREA
- PROJECT SURVEY AREA
- PROJECT PARCEL



PROJECT: **LIGHTSTAR RENEWABLES, LLC**
OLD MYERS SOLAR
TOWN OF WAPPINGER, DUTCHESS COUNTY, NEW YORK

TITLE: **FEDERAL & STATE MAPPED RESOURCES**

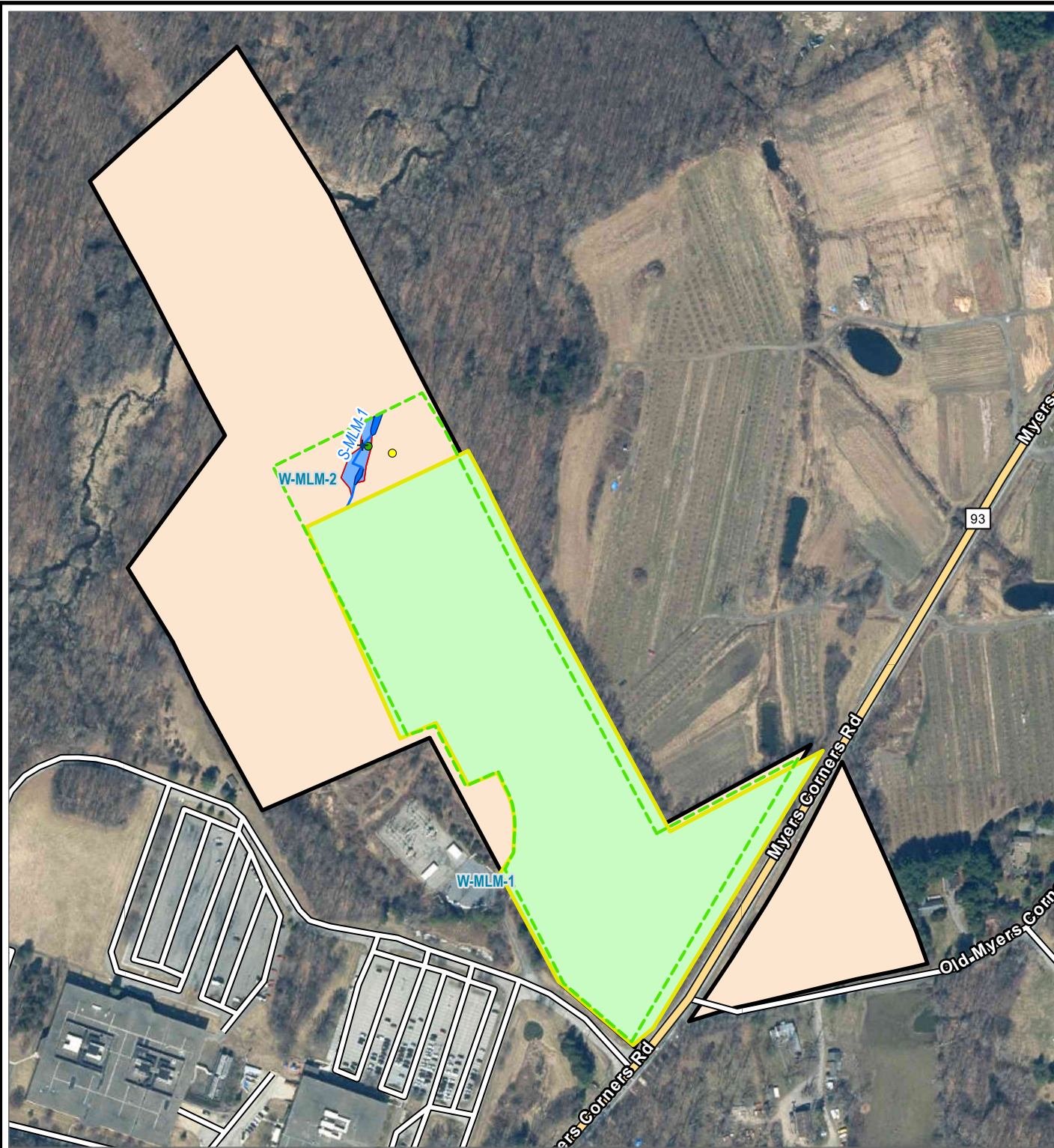
DRAWN BY: A. KAILAS	PROJ. NO.: 488729.1753.0000
CHECKED BY: D. SWEENEY	FIGURE 3
APPROVED BY: M. MUSARRA	
DATE: DECEMBER 2022	

10 MAXWELL DRIVE
CLIFTON PARK, NY 12065
PHONE: 518-348-1190

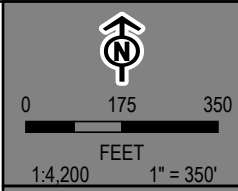
FILE: LIGHTSTAR_MEYER

BASE MAP: ESRI WORLD IMAGERY SERVICE 3/23/2021.
DATA SOURCES: ESRI, USGS, USFWS, NYSDEC, FEMA, LSR

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- ★ STREAM PLOT
 - UPLAND PLOT
 - USACE PLOT - PEM
 - USACE PLOT - PFO
 - DELINEATED WETLAND BOUNDARY LINE
 - DELINEATED WETLAND
 - DELINEATED STREAM POLYGON
 - DELINEATED STREAM CENTERLINE
 - DELINEATED BANK/EDGE
 - PROJECT SURVEY AREA
 - PROJECT LEASE AREA
 - PROJECT PARCEL
- BASE MAP: ESRI WORLD IMAGERY SERVICE 3/23/2021
DATA SOURCES: USGS, ESRI, TRC



PROJECT: LIGHTSTAR RENEWABLES, LLC OLD MYERS SOLAR TOWN OF WAPPINGER, DUTCHESS COUNTY, NEW YORK	
TITLE: DELINEATED RESOURCES	
DRAWN BY: A. KAILAS	PROJ. NO.: 488729.1753.0000
CHECKED BY: D. SWEENEY	FIGURE 4
APPROVED BY: M. MUSARRA	
DATE: DECEMBER 2022	10 MAXWELL DRIVE CLIFTON PARK, NY 12065 PHONE: 518-348-1190
FILE: LIGHTSTAR_MEYER	

APPENDIX B

Photograph Log



Photo 1. Looking west at PEM wetland W-MLM-01. 6/10/22.



Photo 2. Looking west at PFO wetland W-MLM-01. 6/10/22.



Photo 3. Looking north at PFO wetland W-MLM-02 and stream S-MLM-01. 10/09/22.



Photo 4. Looking southwest at intermittent stream S-MLM-01. 10/09/22.



Photo 5. View of a characteristic upland hay field. 6/10/22.



Photo 6. View of a characteristic upland hay field. 6/10/22.



Photo 7. View of a characteristic forested hedgerow. 6/10/22.



Photo 8. View of a characteristic forested hedgerow. 6/10/22.

APPENDIX C

Data Forms

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Old Meyer Solar Project City/County: Wappingers Falls, Dutchess County Sampling Date: 2022-June-10
 Applicant/Owner: Lightstar Renewables State: NY Sampling Point: W-MLM-01_PEM-2
 Investigator(s): Melanie Musarra, Giovanni Pambianchi Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0 to 1
 Subregion (LRR or MLRA): MLRA 144A of LRR R Lat: 41.6016294487 Long: -73.8794466071 Datum: WGS84
 Soil Map Unit Name: DwB - Dutchess-Cardigan complex, undulating, rocky NWI classification: _____
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ____ (If no, explain in Remarks.)
 Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ____
 Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No ____	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/> No ____
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No ____		
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No ____	If yes, optional Wetland Site ID:	W-MLM-01
Remarks: (Explain alternative procedures here or in a separate report) Coverture is PEM. Area is wetland, all three wetland parameters are present.			

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply)				Secondary Indicators (minimum of two required)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)		<input type="checkbox"/> Drainage Patterns (B10)			
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Moss Trim Lines (B16)		<input type="checkbox"/> Dry-Season Water Table (C2)			
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)		<input type="checkbox"/> Crayfish Burrows (C8)			
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Presence of Reduced Iron (C4)		<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)			
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Thin Muck Surface (C7)		<input type="checkbox"/> Stunted or Stressed Plants (D1)			
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Other (Explain in Remarks)			<input checked="" type="checkbox"/> Geomorphic Position (D2)			
<input type="checkbox"/> Algal Mat or Crust (B4)				<input type="checkbox"/> Shallow Aquitard (D3)			
<input type="checkbox"/> Iron Deposits (B5)				<input type="checkbox"/> Microtopographic Relief (D4)			
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)				<input checked="" type="checkbox"/> FAC-Neutral Test (D5)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)							
Field Observations:							
Surface Water Present?	Yes ____ No <input checked="" type="checkbox"/>	Depth (inches):	_____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No ____			
Water Table Present?	Yes ____ No <input checked="" type="checkbox"/>	Depth (inches):	_____				
Saturation Present?	Yes <input checked="" type="checkbox"/> No ____	Depth (inches):	<u>0</u>				
(includes capillary fringe)							
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: 							
Remarks: The criterion for wetland hydrology is met.							

VEGETATION -- Use scientific names of plants.

Sampling Point: W-MLM-01_PEM-2

Tree Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
	<u>0</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15 ft</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
	<u>0</u>	= Total Cover		
Herb Stratum (Plot size: <u>5 ft</u>)				
1. <i>Lysimachia nummularia</i>	60	Yes	FACW	
2. <i>Scirpus atrovirens</i>	30	Yes	OBL	
3. <i>Carex pellita</i>	10	No	OBL	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
	<u>100</u>	= Total Cover		
Woody Vine Stratum (Plot size: <u>30 ft</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
	<u>0</u>	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply By:
OBL species <u>40</u>	x 1 = <u>40</u>
FACW species <u>60</u>	x 2 = <u>120</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals <u>100</u>	(A) <u>160</u> (B)
Prevalence Index = B/A = <u>1.6</u>	

Hydrophytic Vegetation Indicators:

☒ 1 - Rapid Test for Hydrophytic Vegetation

☒ 2 - Dominance Test is >50%

☒ 3 - Prevalence Index is ≤ 3.0¹

☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

Active agricultural field.

SOIL

Sampling Point: W-MLM-01_PEM-2

[illegible]

Hydrology Photos



Vegetation Photos



Soil Photos



Photo of Sample Plot
North



Photo of Sample Plot
East



Photo of Sample Plot
South



Photo of Sample Plot
West



WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Old Meyer Solar Project City/County: Wappingers Falls, Dutchess County Sampling Date: 2022-June-10
 Applicant/Owner: Lightstar Renewables State: NY Sampling Point: W-MLM-01_PFO-1
 Investigator(s): Melanie Musarra, Giovanni Pambianchi Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0 to 1
 Subregion (LRR or MLRA): MLRA 144A of LRR R Lat: 41.6015660406 Long: -73.8792217436 Datum: WGS84
 Soil Map Unit Name: DwB - Dutchess-Cardigan complex, undulating, rocky NWI classification: _____
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ____ (If no, explain in Remarks.)
 Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ____
 Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No ____	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/> No ____
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No ____	If yes, optional Wetland Site ID:	W-MLM-01
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No ____		
Remarks: (Explain alternative procedures here or in a separate report) Covertypes is PFO. Area is wetland, all three wetland parameters are present.			

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input checked="" type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
Field Observations: Surface Water Present? Yes ____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes ____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No ____ Depth (inches): <u>0</u> (includes capillary fringe)		Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No ____	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: 			
Remarks: The criterion for wetland hydrology is met.			

VEGETATION -- Use scientific names of plants.

Sampling Point: W-MLM-01_PFO-1

Tree Stratum (Plot size: <u>30 ft</u>)			
	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Acer rubrum</i>	60	Yes	FAC
2. <i>Ulmus americana</i>	30	Yes	FACW
3. <i>Fraxinus pennsylvanica</i>	10	No	FACW
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
	100	= Total Cover	
Sapling/Shrub Stratum (Plot size: <u>15 ft</u>)			
1. <i>Ulmus americana</i>	10	Yes	FACW
2. <i>Fraxinus pennsylvanica</i>	10	Yes	FACW
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
	20	= Total Cover	
Herb Stratum (Plot size: <u>5 ft</u>)			
1. <i>Toxicodendron radicans</i>	5	Yes	FAC
2. <i>Lythrum salicaria</i>	5	Yes	OBL
3. <i>Onoclea sensibilis</i>	5	Yes	FACW
4. <i>Lysimachia nummularia</i>	5	Yes	FACW
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
	20	= Total Cover	
Woody Vine Stratum (Plot size: <u>30 ft</u>)			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply By:
OBL species <u>5</u>	x 1 = <u>5</u>
FACW species <u>70</u>	x 2 = <u>140</u>
FAC species <u>65</u>	x 3 = <u>195</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals <u>140</u>	(A) <u>340</u> (B)
Prevalence Index = B/A = <u>2.4</u>	

Hydrophytic Vegetation Indicators:

___ 1- Rapid Test for Hydrophytic Vegetation

☒ 2 - Dominance Test is >50%

☒ 3 - Prevalence Index is ≤ 3.0¹

___ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☒ No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: W-MLM-01_PFO-1

[illegible]

Hydrology Photos



Soil Photos



Photo of Sample Plot
North



Photo of Sample Plot
East



Photo of Sample Plot
South



Photo of Sample Plot
West



WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Old Meyer Solar Project City/County: Wappingers Falls, Dutchess County Sampling Date: 2022-June-10
 Applicant/Owner: Lightstar Renewables State: NY Sampling Point: W-MLM-01_UPL-1
 Investigator(s): Melanie Musarra, Giovanni Pambianchi Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 0 to 1
 Subregion (LRR or MLRA): MLRA 144A of LRR R Lat: 41.6016110316 Long: -73.8792189918 Datum: WGS84
 Soil Map Unit Name: DwB - Dutchess-Cardigan complex, undulating, rocky NWI classification: _____
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ____ (If no, explain in Remarks.)
 Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ____
 Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No ____	
Hydric Soil Present?	Yes ____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes ____ No <input checked="" type="checkbox"/>
Wetland Hydrology Present?	Yes ____ No <input checked="" type="checkbox"/>	If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report) Covertypes is UPL. Area is upland, not all three wetland parameters are present.		

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply)			Secondary Indicators (minimum of two required)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)			
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)			
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)			
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)			
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)			
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)			
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)			
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)			
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)			
		<input type="checkbox"/> FAC-Neutral Test (D5)			
Field Observations: Surface Water Present? Yes ____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes ____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes ____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)			Wetland Hydrology Present? Yes ____ No <input checked="" type="checkbox"/>		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: 					
Remarks: The criterion for wetland hydrology is not met.					

Sampling Point: W-MLM-01 UPL-1

Tree Stratum (Plot size: 30 ft)				Dominance Test worksheet:			
	Absolute % Cover	Dominant Species?	Indicator Status	Number of Dominant Species That Are OBL, FACW, or FAC:			
1. <i>Acer rubrum</i>	40	Yes	FAC	4			(A)
2. <i>Fraxinus pennsylvanica</i>	20	Yes	FACW	Total Number of Dominant Species Across All Strata:			6 (B)
3. <i>Juniperus virginiana</i>	20	Yes	FACU	Percent of Dominant Species That Are OBL, FACW, or FAC:			66.7 (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet:			
5. _____	_____	_____	_____	Total % Cover of:		Multiply By:	
6. _____	_____	_____	_____	OBL species	0	x 1 =	0
7. _____	_____	_____	_____	FACW species	30	x 2 =	60
	80	= Total Cover		FAC species	75	x 3 =	225
Sapling/Shrub Stratum (Plot size: 15 ft)				FACU species	70	x 4 =	280
1. <i>Fraxinus pennsylvanica</i>	10	Yes	FACW	UPL species	0	x 5 =	0
2. _____	_____	_____	_____	Column Totals	175	(A)	565 (B)
3. _____	_____	_____	_____	Prevalence Index = B/A = 3.2			
4. _____	_____	_____	_____	Hydrophytic Vegetation Indicators:			
5. _____	_____	_____	_____	1 - Rapid Test for Hydrophytic Vegetation			
6. _____	_____	_____	_____	✓ 2 - Dominance Test is >50%			
7. _____	_____	_____	_____	3 - Prevalence Index is ≤ 3.0 ¹			
	10	= Total Cover		4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
Herb Stratum (Plot size: 5 ft)				✓ Problematic Hydrophytic Vegetation ¹ (Explain)			
1. <i>Parthenocissus quinquefolia</i>	50	Yes	FACU	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic			
2. <i>Toxicodendron radicans</i>	35	Yes	FAC	Definitions of Vegetation Strata:			
3. _____	_____	_____	_____	Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.			
4. _____	_____	_____	_____	Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.			
5. _____	_____	_____	_____	Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.			
6. _____	_____	_____	_____	Woody vines – All woody vines greater than 3.28 ft in height.			
7. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes ✓ No _____			
8. _____	_____	_____	_____				
9. _____	_____	_____	_____				
10. _____	_____	_____	_____				
11. _____	_____	_____	_____				
12. _____	_____	_____	_____				
	85	= Total Cover					
Woody Vine Stratum (Plot size: 30 ft)							
1. _____	_____	_____	_____				
2. _____	_____	_____	_____				
3. _____	_____	_____	_____				
4. _____	_____	_____	_____				
	0	= Total Cover					

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: W-MLM-01_UPL-1

[illegible]

Hydrology Photos



Vegetation Photos



Soil Photos



Photo of Sample Plot
North



Photo of Sample Plot
East



Photo of Sample Plot
South



Photo of Sample Plot
West



WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Old Meyer Solar Project City/County: Wappingers Falls, Dutchess County Sampling Date: 2022-Oct-19
 Applicant/Owner: Lightstar Renewables State: NY Sampling Point: W-MLM-02_PFO-1
 Investigator(s): Melanie Musarra, Clare Abbatiello Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1 to 3
 Subregion (LRR or MLRA): MLRA 144A of LRR R Lat: 41.6046348911 Long: -73.8808464 Datum: WGS84
 Soil Map Unit Name: DwC - Dutchess-Cardigan complex, rolling, rocky NWI classification: _____
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ____ (If no, explain in Remarks.)
 Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ____
 Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No ____	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/> No ____
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No ____		
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No ____	If yes, optional Wetland Site ID:	W-MLM-02
Remarks: (Explain alternative procedures here or in a separate report) Covertypes is PFO. Area is wetland, all three wetland parameters are present.			

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply)				Secondary Indicators (minimum of two required)			
<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)		<input type="checkbox"/> Surface Soil Cracks (B6)			
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)		<input type="checkbox"/> Drainage Patterns (B10)			
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)		<input type="checkbox"/> Moss Trim Lines (B16)			
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)		<input type="checkbox"/> Dry-Season Water Table (C2)			
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)		<input type="checkbox"/> Crayfish Burrows (C8)			
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)		<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)			
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> Stunted or Stressed Plants (D1)		<input checked="" type="checkbox"/> Stunted or Stressed Plants (D1)			
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Geomorphic Position (D2)		<input checked="" type="checkbox"/> Geomorphic Position (D2)			
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)		<input type="checkbox"/> Shallow Aquitard (D3)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)		<input type="checkbox"/> Microtopographic Relief (D4)			
		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)			
Field Observations:							
Surface Water Present?	Yes ____ No <input checked="" type="checkbox"/>	Depth (inches):	_____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No ____			
Water Table Present?	Yes ____ No <input checked="" type="checkbox"/>	Depth (inches):	_____				
Saturation Present?	Yes <input checked="" type="checkbox"/> No ____	Depth (inches):	<u>0</u>				
(includes capillary fringe)							
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: 							
Remarks: The criterion for wetland hydrology is met.							

Sampling Point: W-MLM-02 PFO-1

Tree Stratum (Plot size: 30 ft)				Dominance Test worksheet:			
Absolute % Cover	Dominant Species?	Indicator Status					
1. <i>Acer rubrum</i>	40	Yes	FAC	Number of Dominant Species That Are OBL, FACW, or FAC:	6	(A)	
2. <i>Quercus palustris</i>	20	Yes	FACW	Total Number of Dominant Species Across All Strata:	7	(B)	
3.				Percent of Dominant Species That Are OBL, FACW, or FAC:	85.7	(A/B)	
4.				Prevalence Index worksheet:			
5.				Total % Cover of:		Multiply By:	
6.				OBL species	0	x 1 = 0	
7.				FACW species	65	x 2 = 130	
	60	= Total Cover		FAC species	47	x 3 = 141	
Sapling/Shrub Stratum (Plot size: 15 ft)				FACU species	20	x 4 = 80	
1. <i>Fraxinus pennsylvanica</i>	40	Yes	FACW	UPL species	0	x 5 = 0	
2. <i>Lonicera morrowii</i>	20	Yes	FACU	Column Totals	132	(A) 351 (B)	
3.				Prevalence Index = B/A = 2.7			
4.				Hydrophytic Vegetation Indicators:			
5.				1 - Rapid Test for Hydrophytic Vegetation			
6.				✓ 2 - Dominance Test is >50%			
7.				✓ 3 - Prevalence Index is ≤ 3.0 ¹			
	60	= Total Cover		4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
Herb Stratum (Plot size: 5 ft)				✓ Problematic Hydrophytic Vegetation ¹ (Explain)			
1. <i>Symphytotrichum lanceolatum</i>	5	Yes	FACW	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic			
2. <i>Toxicodendron radicans</i>	2	Yes	FAC	Definitions of Vegetation Strata:			
3.				Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.			
4.				Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.			
5.				Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.			
6.				Woody vines – All woody vines greater than 3.28 ft in height.			
7.				Hydrophytic Vegetation Present? Yes ✓ No			
8.							
9.							
10.							
11.							
12.							
	7	= Total Cover					
Woody Vine Stratum (Plot size: 30 ft)							
1. <i>Vitis riparia</i>	5	Yes	FAC				
2.							
3.							
4.							
	5	= Total Cover					

Remarks: (Include photo numbers here or on a separate sheet.)

A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

SOIL

Sampling Point: W-MLM-02_PFO-1

[illegible]

Hydrology Photos



Vegetation Photos



Soil Photos



Photo of Sample Plot
North

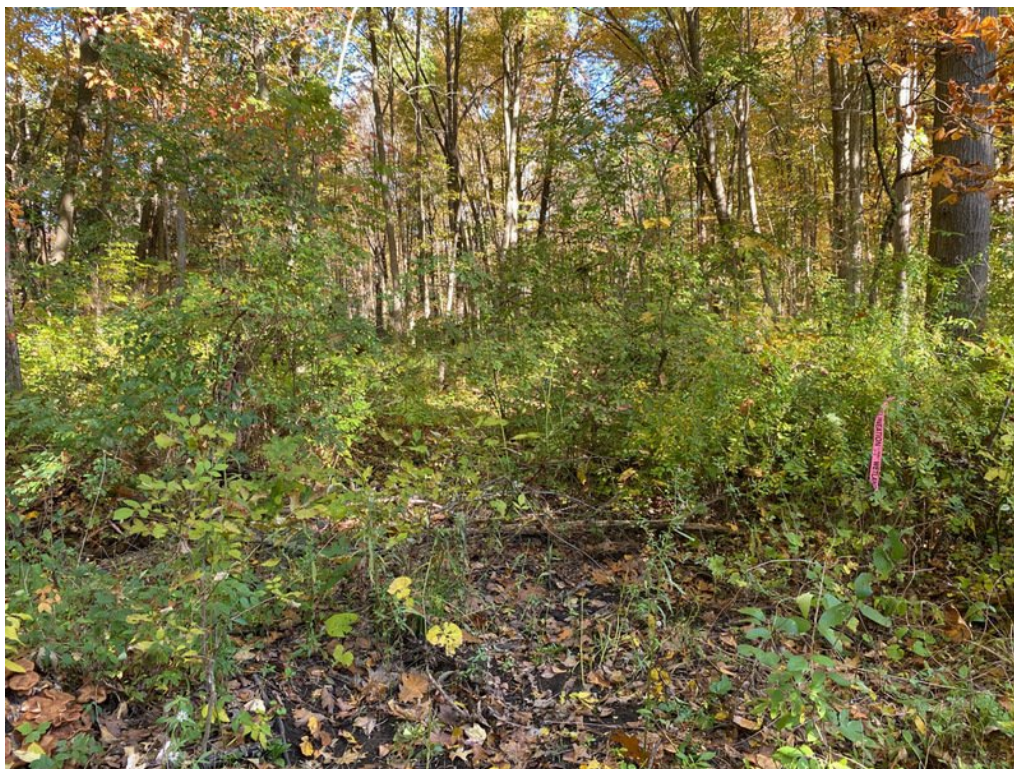


Photo of Sample Plot
East



Photo of Sample Plot
South



Photo of Sample Plot
West



WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Old Meyer Solar Project City/County: Wappingers Falls, Dutchess County Sampling Date: 2022-Oct-19
 Applicant/Owner: Lightstar Renewables State: NY Sampling Point: W-MLM-02_UPL-1
 Investigator(s): Melanie Musarra, Clare Abbatiello Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 1 to 3
 Subregion (LRR or MLRA): MLRA 144A of LRR R Lat: 41.6045590167 Long: -73.8806451 Datum: WGS84
 Soil Map Unit Name: DwC - Dutchess-Cardigan complex, rolling, rocky NWI classification: _____
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ____ (If no, explain in Remarks.)
 Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ____
 Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____ No <input checked="" type="checkbox"/>	
Hydric Soil Present?	Yes ____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No ____
Wetland Hydrology Present?	Yes ____ No <input checked="" type="checkbox"/>	If yes, optional Wetland Site ID: W-MLM-02
Remarks: (Explain alternative procedures here or in a separate report) Coverture is UPL.		

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply)			Secondary Indicators (minimum of two required)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)			
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)			
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)			
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)			
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)			
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)			
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)			
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)			
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)			
		<input type="checkbox"/> FAC-Neutral Test (D5)			
Field Observations: Surface Water Present? Yes ____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes ____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes ____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)			Wetland Hydrology Present? Yes ____ No <input checked="" type="checkbox"/>		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks:					

Sampling Point: W-MLM-02 UPL-1

Tree Stratum (Plot size: 30 ft)				Dominance Test worksheet:			
Absolute % Cover	Dominant Species?	Indicator Status					
1. <i>Quercus rubra</i>	20	Yes	FACU	Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)	
2.				Total Number of Dominant Species Across All Strata:	5	(B)	
3.				Percent of Dominant Species That Are OBL, FACW, or FAC:	20	(A/B)	
4.				Prevalence Index worksheet:			
5.				Total % Cover of:		Multiply By:	
6.				OBL species	0	x 1 = 0	
7.				FACW species	0	x 2 = 0	
	20	= Total Cover		FAC species	20	x 3 = 60	
Sapling/Shrub Stratum (Plot size: 15 ft)				FACU species	80	x 4 = 320	
1. <i>Rosa multiflora</i>	40	Yes	FACU	UPL species	20	x 5 = 100	
2.				Column Totals	120	(A) 480 (B)	
3.				Prevalence Index = B/A = 4			
4.				Hydrophytic Vegetation Indicators:			
5.				___ 1 - Rapid Test for Hydrophytic Vegetation			
6.				___ 2 - Dominance Test is > 50%			
7.				___ 3 - Prevalence Index is ≤ 3.0 ¹			
	40	= Total Cover		___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
Herb Stratum (Plot size: 5 ft)				___ Problematic Hydrophytic Vegetation ¹ (Explain)			
1. <i>Solidago rugosa</i>	20	Yes	FAC	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic			
2. <i>Fragaria vesca</i>	20	Yes	UPL	Definitions of Vegetation Strata:			
3. <i>Parthenocissus quinquefolia</i>	20	Yes	FACU	Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.			
4.				Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.			
5.				Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.			
6.				Woody vines – All woody vines greater than 3.28 ft in height.			
7.				Hydrophytic Vegetation Present? Yes ___ No <input checked="" type="checkbox"/>			
8.							
9.							
10.							
11.							
12.							
	60	= Total Cover					
Woody Vine Stratum (Plot size: 30 ft)							
1.							
2.							
3.							
4.							
	0	= Total Cover					

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: W-MLM-02_UPL-1

[illegible]

Vegetation Photos



Soil Photos



Photo of Sample Plot
North



Photo of Sample Plot
East



Photo of Sample Plot
South



Photo of Sample Plot
West





STREAM AND WATERBODY INVENTORY

CLIENT: LIGHTSTAR RENEWABLES PROJECT: OLD MEYER

S-MLM-01, Intermittent

PLOT OVERVIEW

ID	S-MLM-01	Classification	Intermittent
Waterbody Name		Date	2022-10-19 10:24:30
Evaluators	Melanie Musarra		
Address (Approx.)	Wappingers Falls Dutchess County NY 12590 US		
Location Description	Within PFO wetland		
Lat. / Long. (WGS84)	41.6046349, -73.8808888667		

STREAM / WATERBODY CHARACTERISTICS

Flow Stage	Moderate	Flow Direction	N
Average Depth (in.)	2	Probed Stream Depth	0 to 6 inches
Perceptible Flow	Yes	Obstruction	NA
Channel Substrate	Cobble/Gravel,Silt/Clay	Channel Gradient	2 to 4% (1 to 2 deg) Moderate
Is floodplain present?	no	Bankfull Width (ft)	NA
Existing Water Width (ft)	3	Top of Bank (ft)	1
Water Quality	Clear	Presumed Regulatory Authority	USACE
Ordinary High Water Mark (ft)	4	Canopy Closure (Est.)	80 to 90%
OHWM Indicators	Bed and Banks,Disturbed/Washed-away Leaf Litter,Matted, Bent, or Absent Vegetation,Natural Line Impressed on Bank,Scour		
Water Quality Comments			
Bank Substrate	Cobble/Gravel,Silt/Clay		
Aquatic Habitat	Overhanging Vegetation,Riffle - Pool		
Observed Use	Drainage		
Observed Fauna			
RTE Species & Evidence			
Notes			

	BANK HEIGHT (ft)	BANK SLOPE	BANK EROSION POTENTIAL
Left Bank	1	0 to 8% (0 to 5 deg) Nearly Level to Gently Sloping	Low
Right Bank	1	0 to 8% (0 to 5 deg) Nearly Level to Gently Sloping	Low

PHOTOS

Upstream Photo:



Downstream Photo:



Across Stream/Waterbody Photo:

